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A Study on Pathological Narcissism and Narcissistic Personality Disorders: Is it Human Behaviour or Diseases

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ABSTRACT

Narcissistic personality disorder is a disorder in which people have an inflated sense of their own importance, a deep need for admiration and a lack of empathy for others. People diagnosed with a narcissistic personality disorder are characterized by unwarranted feelings of self-importance. They have a sense of entitlement and demonstrate grandiosity in their beliefs and behaviour. They have a strong need for admiration, but lack feelings of empathy for others. These qualities are usually defences against a deep feeling of inferiority and of being unloved. Others may not enjoy being around you, and you may find your relationships unfulfilling.

But behind this mask of ultra confidence lies a fragile self-esteem that's vulnerable to the slightest criticism. A narcissistic personality disorder causes problems in many areas of life, such as relationships, work, or financial affairs. Although individuals with NPD are often ambitious and capable, the inability to tolerate setbacks, disagreements or criticism, along with lack of empathy, make it difficult for such individuals to work cooperatively with others or to maintain long-term professional achievements.

Keywords: *Pathological Narcissism, Narcissistic Personality disorders, Interview, Psychotherapy*

INTRODUCTION

The term "narcissistic personality structure" was introduced by Kernberg in 1967[1] and "narcissistic personality disorder" first proposed by Heinz Kohut in 1968.[2] The "narcissism" to describe excessive vanity and self-centeredness predates by many years the modern medical classification of narcissistic personality disorder. Narcissistic personality disorder (NPD) is a long term pattern of abnormal behavior characterized by exaggerated feelings of self-importance, an excessive need for admiration, and a lack of understanding of others' feelings.[3] These people affected often spend a lot of time thinking about achieving power, success, or their appearance. They often take advantage of the people around them. The behavior typically begins by early adulthood, and occurs across a variety of situations. Lifetime prevalence of NPD is estimated at 1% in the general population and 2% to 16% in clinical populations.[4] A 2010 systematic review found the prevalence of NPD to be between 0% to 6% in community samples.[5]

Early studies on clinical samples from India reported prevalence rates of 0.3-1.6%.[6,7] There is a small gender difference, with men having a slightly higher incidence than in women.[8]

CASE REPORT

A 48 Years old Mr Mohd Saleem Ansari, who set out to make his dream a success in a field of weaver's business. He was born in the Meerut city, UP, India in a prestigious family. At the early age when his height was only 2.5 feet, he set out to realize his dream which had already taken shape in his mind. Now, he is a dynamic, versatile, charismatic and multidimensional personality, extensively upheld for his occupational competence, célèbre and knowledge. Graced with fore vision, a genius mind and gifted with a vibrant and vivacious personality, he is not only a reputed businessman in society but is also a great philanthropist, a learned thinker, visionary and a committed , staunch social reformer, dedicated to the upliftment of the downtrodden, poor and weaker section of the community. During his social interview and clinical checkup by psychiatrist signs and symptoms

of narcissistic personality disorder were found in our case study.

DSM-5 criteria for narcissistic personality disorder include these features:

- Having an exaggerated sense of self-importance
- Expecting to be recognized as superior even without achievements that warrant it
- Exaggerating your achievements and talents
- Being preoccupied with fantasies about success, power, brilliance, beauty or the perfect mate
- Believing that you are superior and can only be understood by or associate with equally special people
- Requiring constant admiration
- Having a sense of entitlement
- Expecting special favors and unquestioning compliance with your expectations
- Taking advantage of others to get what you want
- Having an inability or unwillingness to recognize the needs and feelings of others
- Being envious of others and believing others envy you
- Behaving in an arrogant or haughty manner

Although some features of narcissistic personality disorder may seem like having confidence, it's not the same. Narcissistic personality disorder crosses the border of healthy confidence into thinking so highly of yourself that you put yourself on a pedestal and value yourself more than you value others.

According to the DSM-5, individuals with NPD have most or all of the following symptoms, typically without commensurate qualities or accomplishments: [12]

- Grandiosity with expectations of superior treatment from others
- Fixated on fantasies of power, success, intelligence, attractiveness, etc.
- Self-perception of being unique, superior and associated with high-status people and institutions
- Needing constant admiration from others
- Sense of entitlement to special treatment and to obedience from others
- Exploitative of others to achieve personal gain
- Unwilling to empathize with others' feelings, wishes, or needs
- Intensely jealous of others and the belief that others are equally jealous of them
- Pompous and arrogant demeanor

Many experts use the criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), published by the American Psychiatric Association, to diagnose mental conditions.

Signs and symptoms of narcissistic personality disorder

People with narcissistic personality disorder are characterized by their persistent grandiosity, excessive need for admiration, and a disdain and lack of empathy for others. [9] These individuals often display arrogance, a sense of superiority, and power-seeking be haviors.[10] Narcissistic personality disorder is different from having a strong sense of self-confidence. This is because people with NPD typically value themselves over others to the extent that they disregard the feelings and wishes of others and expect to be treated as superior regardless of their actual status or achievements. In addition, people with NPD may exhibit fragile egos, an inability to tolerate criticism, and a tendency to belittle others in an attempt to validate their own superiority. [11]

Associated features

People with NPD tend to exaggerate their skills and accomplishments as well as their level of intimacy with people they consider to be high-status. Despite occasional flare-ups of insecurity, their self-image is primarily stable (i.e., overinflated). To the extent that people are pathologically narcissistic, they can be controlling, blaming, self-absorbed, intolerant of others' views, unaware of others' needs and of the effects of their behavior on others, and insistent that others see them as they wish to be seen. They usually mask these feelings from others with feigned humility, isolating socially or

they may react with outbursts of rage, defiance, or by seeking revenge.[12]

According to the DSM-5, "Many highly successful individuals display personality traits that might be considered narcissistic. Only when these traits are inflexible, maladaptive, and persisting and significant functional impairment or subjective distress do they constitute narcissistic personality disorder. Although overconfidence tends to make individuals with NPD ambitious, it does not necessarily lead to success and high achievement professionally. These individuals may be unwilling to compete or may refuse to take any risks in order to avoid appearing like a failure. In addition, their inability to tolerate setbacks, disagreements or criticism, along with lack of empathy, make it difficult for such individuals to work cooperatively with others or to maintain long-term professional relationships with superiors and colleagues.[13]

Narcissistic individuals use various strategies to protect the self at the expense of others. They tend to devalue, derogate, insult, blame others and they often respond to threatening feedback with anger and hostility.[14]

Since the fragile ego of individuals with NPD is hypersensitive to perceived criticism or defeat, they are prone to feelings of shame, humiliation and worthlessness over minor or even imagined incidents.[11] The merging of the "inflated self-concept" and the "actual self" is seen in the inherent grandiosity of narcissistic personality disorder. Also inherent in this process are the defense mechanisms of denial, idealization and devaluation.[15]

Causes of narcissistic personality disorder

Environmental, genetic and neurobiological and social factors are also thought to have a significant influence on the onset of NPD.[16] In some people, pathological narcissism may develop from an impaired attachment to their primary caregivers, usually their parents.[17]

According to Groopman and Cooper (2006), the following factors have been identified by various researchers as possible factors that promote the development of NPD. [18]

- An oversensitive temperament (personality traits) at birth.
- Excessive admiration that is never balanced with realistic feedback.
- Excessive praise for good behaviors or excessive criticism for bad behaviors in childhood.
- Overindulgence and overvaluation by parents, other family members, or peers.
- Being praised for perceived exceptional looks or abilities by adults.
- Severe emotional abuse in childhood.
- Unpredictable or unreliable care giving from parents.
- Learning manipulative behaviors from parents or peers.
- Valued by parents as a means to regulate their own self-esteem.

Cultural elements are believed to influence the prevalence of NPD as well since NPD traits have been found to be more common in modern societies than in traditional ones.

The brain regions identified in these studies are associated with empathy, compassion, emotional regulation, and cognitive functioning. These findings suggest that narcissistic personality disorder is related to a compromised capacity for emotional empathy and emotional regulation.[19]

Type of Pathological Narcissism and Narcissistic Personality Disorder

Theodore Millon identified five subtypes of narcissism.[20] However, there are few pure variants of any subtype,[21] and the subtypes are not recognized in the DSM or ICD.

Unprincipled narcissist- Deficient conscience; unscrupulous, amoral, disloyal, fraudulent, deceptive, arrogant, exploitive; a con artist and charlatan; dominating, contemptuous, vindictive.

Amorous narcissist- Sexually seductive, enticing, beguiling, tantalizing; glib and clever; disinclines real intimacy; indulges hedonistic desires; bewitches and inveigles others; pathological lying and swindling.

Compensatory narcissist- Seeks to counteract or

cancel out deep feelings of inferiority and lack of self-esteem; offsets deficits by creating illusions of being superior, exceptional, admirable, noteworthy; self-worth results from self-enhancement.

Elitist narcissist- Feels privileged and empowered by virtue of special childhood status and pseudo achievements; entitled façade bears little relation to reality; seeks favored and good life; is upwardly mobile; cultivates special status and advantages by association.

Malignant narcissist- Fearless, guiltless, remorseless, calculating, ruthless, inhumane, callous, brutal, rancorous, aggressive, biting, merciless, vicious, cruel, spiteful; hateful and jealous; anticipates betrayal and seeks punishment; desires revenge; Has been isolated, and is often suicidal, and is homicidal.

RISK FACTORS

- Narcissistic personality disorder is rare. During childhood and teen years, children may show traits of narcissism, but this may simply be typical of their age and doesn't mean they'll go on to develop narcissistic personality disorder.

- Narcissistic personality disorder affects more males than females, and it often begins in the teens or early adulthood.

- Although the cause of narcissistic personality disorder isn't known, some researchers think that in biologically vulnerable children, parenting styles that overemphasize the child's specialness and criticize fears and failures may be partially responsible. The child may hide low self-esteem by developing a superficial sense of perfection and behavior that shows a need for constant admiration.

Complications

Complications of narcissistic personality disorder, if left untreated, can include:

- Relationship difficulties
- Problems at work
- Depression
- Drug or alcohol abuse
- thoughts or behavior

Co-morbidity

NPD has a high rate of co-morbidity with other mental disorders. Individuals with NPD are prone to bouts of depression, often meeting criteria for co-occurring depressive disorders. In addition, NPD is associated with bipolar disorder, anorexia, and substance use disorders, especially cocaine. As far as other personality disorders, NPD may be associated with histrionic, borderline, antisocial, and paranoid personality disorders.

TREATMENT

Narcissistic personality disorder is rarely the primary reason for people afflicted with the disorder for seeking mental health treatment. When people with NPD enter treatment, it's typically prompted by life difficulties or to seek relief from another disorder, such as major depressive disorder, substance use disorders, bipolar disorder, or eating disorders, or at the insistence of relatives and friends. This is partly because individuals with NPD generally have poor insight and fail to recognize their perception and behavior as inappropriate and problematic due to their very positive self image.

Pattern change strategies, done over a long period of time, are used to increase the ability of those with NPD to become more empathetic in everyday relationships. To help modify their sense of entitlement and self-centeredness schema, the strategy is to help them identify how to utilize their unique talents and to help others for reasons other than their own personal gain. This is not so much to change their self-perception of their "entitlement" feeling but more to help them empathize with others. Another type of treatment would be temperament change.

Medications

There are no medications specifically used to treat narcissistic personality disorder. However, if you have symptoms of depression, anxiety or other conditions, medications such as antidepressants or anti-anxiety drugs may be helpful. [11]

Psychotherapy

Psychoanalytic psychotherapy may be effective in treating NPD, but therapists must recognize the patient's traits and use caution in tearing down narcissistic defenses too quickly. Anger, rage, impulsivity and

impatience can be worked on with skill training. Therapy may not be effective because patients may receive feedback poorly and defensively. Relationship therapy stresses the importance of learning and applying four basic interpersonal skills: "...effective expression, empathy, discussion and problem solving/conflict resolution.

Treatment for NPD is centered around psychotherapy. Narcissistic personality disorder treatment is centered around talk therapy, also called psychotherapy. Psychotherapy can help you:

- Learn to relate better with others so your relationships are more intimate, enjoyable and rewarding
- Understand the causes of your emotions and what drives you to compete, to distrust others, and perhaps to despise yourself and others

Because personality traits can be difficult to change, therapy may take several years. Areas of change are directed at helping you accept responsibility and learning to:

- Accept and maintain real personal relationships and collaboration with co-workers
- Recognize and accept your actual competence and potential so you can tolerate criticisms or failures
- Increase your ability to understand and regulate your feelings
- Understand and tolerate the impact of issues related to your self-esteem
- Release your desire for unattainable goals and ideal conditions and gain an acceptance of what's attainable and what you can accomplish

CONCLUSION

The field of personality disorders is at a nascent stage of development in India. From a situation of almost no articles specifically focused on personality pathology till the 1980s, there is now a trickle. However, to date, the focus is understandably but entirely on clinical epidemiology. There is obviously a need for better and more studies in relation to personality disorders on methodology and epidemiology (particularly community studies), and also on cultural and classificatory issues.

There is also a need for studies to populate the vast open swathes in terms of etiology, clinical features, assessment, management, course and outcome, and on the various debates that mark the narcissistic personality disorder.

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A Histomorphological Study of the Non-Neoplastic Polypoidal Masses of the Nasal Cavity, Paranasal Sinuses, and Nasopharynx

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ABSTRACT

Introduction: Mass in the nasal cavity is a fairly common finding in clinical practice. A wide array of neoplastic and non-neoplastic conditions present as a mass in the nasal cavity, paranasal sinuses and nasopharynx.

Aims and objectives: The aim of this study was to analyze the histopathological patterns of polypoidal lesions in the nose, paranasal sinuses, and nasopharynx.

Method: The study was carried out from June 2009 to June 2012 .The cases were taken from records of the pathology department of a tertiary care hospital. The blocks were re-cut and sections were stained using hematoxylin and eosin.

Observations and results: A total of 100 cases presented as polypoidal lesions of nose and paranasal sinuses, 51 were diagnosed as simple nasal polyps. Out of the 49 polypoidal lesions, 42 cases were neoplastic polypoidal lesions, six were infectious in etiology, and one of benign non-neoplastic pathology.

Conclusion: Polypoidal masses in the nasal cavity, paranasal sinuses, and nasopharynx form a large range of non-neoplastic lesions from simple nasal polyps to fungal infections.

Keywords: *polypoidal lesions; nasal polyp; nasal and paranasal sinuses; nasopharynx.*

INTRODUCTION

Nasal polyps are polypoidal masses arising from mucous membranes of nose and paranasal sinuses commonly encountered in clinical practice. A patient may present with complaints of nasal obstruction, nasal discharge, epistaxis, and/or allergic symptoms such as sneezing or rhinorrhea.A large number of specific diseases arise from the specialized tissues in these anatomical areas, i.e. Schneiderian papillomas in the nasal cavity, intestinal type of adenocarcinomas in the paranasal sinuses, angiofibromas and lymphoepitheliomas in the nasopharynx, etc.[1] Clinically, it is difficult to distinguish between simple nasal polyps, polypoidal lesions due to specific diseases and polypoidal neoplasms. Hence, a histopathological examination of all nasal polyps is important to arrive at a specific diagnosis and thereby suggest an appropriate treatment regimen.

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MATERIALS AND METHOD

A two year retrospective study was carried out in the Department of Pathology in a tertiary care hospital from 2009 to 2011 and continued prospectively from June 2011 to June 2012. All the specimens sent as polypoidal lesions of nasal and paranasal sinuses or of nasopharynx were studied. The sections were stained with the routine hematoxylin and eosin (H&E) stains followed by special stains wherever required. A histopathological diagnosis of each lesion was made after careful evaluation

of the tissues. Descriptive statistical measures like percentages and proportions were used to analyze the data. Histological analysis of simple nasal polyps was done with reference to type and ulceration of surface epithelium, density and type of inflammatory cell population, stromal changes and presence of glands. Average number of cells per 5 high power fields was taken to approximately quantify the inflammatory cell population as dense (> 50) moderate (30-50) or scanty (<30).

RESULTS

A total of 100 biopsies sent from the ENT Department were reviewed over a period of 3 years from June 2009 to June 2012. Most patients came with the chief complaint of nasal obstruction (55 cases) or nasal discharge (47cases). Epistaxis was noted in 26 patients and allergic symptoms such as sneezing and rhinorrhea were seen in 10 cases. 24 cases presented with bilateral involvement. Histopathological examination of the cases revealed that simple nasal polyps constituted 51 cases and polypoidal like lesions constituted 49 cases.Of the 49 polypoidal lesions, 6 (12.2%) were infectious, 42(85.8%) were neoplastic and 1 was a benign non neoplastic lesion. Fungal infections and rhinosporidiosis were the infectious lesions presenting as polypoidal masses. A solitary case of fibrous dysplasia was reported in an 18 year old female.

DISCUSSION

In our study, sinonasal masses had a predilection for males, with a male to female ratio of 1.7: 1. Similarly, studies conducted by Lathi et al [2] (male: female ratio of 1.6: 1) and Zafar et al [3] (male: female ratio of 2: 1) also showed a male preponderance. However, another study by Bakari et al [4] from Nigeria revealed a female preponderance of 1.2: 1. Most of our cases occurred between the ages of 10- 65 years. The majority of patients belonged to the 2nd to 4th decades of life while malignancies were generally found after the 4th decade. In the study done by Lathi et al [2], the 2nd to 4th decades of life were the most vulnerable period for the development of sinonasal masses. The present study also coincided with the studies done by Bakari et al [4] and Zafar et al [3] with the peak age of incidence in their studies being 33 years and 22.5 years respectively.

Comparison of Histopathological Findings:

SIMPLE NASAL POLYPS:

Simple nasal polyps occurred over a wide age range, though the majority of patients presented in the third and fourth decades of life (Table 1)with a male: female ratio of 1.7: 1 (Table 2).Ulceration of epithelium may be due to trauma or due to pressure of enlarging polyps against rigid structures causing devitalization. [5] 76.5% of simple nasal polyps had an ulcerated surface and 37 cases (72.5%) were lined by pseudostratified ciliated columnar epithelium. In a study by Larsen and Tos,[6] 62% of nasal polyps (65 cases) were lined by pseudostratified ciliated columnar epithelium with goblet cells and ciliary cells. In a study by Dandapath et al, 46% of polyps were lined by ciliated columnar epithelium, and 113 cases (100%) showed ulceration of the surface epithelium [7].

In the present study, a significant ($p<0.000000001$) feature was the constant presence of inflammatory cells in the stroma of nasal polyps. Most polyps in present study showed varying degree of cellular infiltrate consisting of eosinophils, lymphocytes, plasma cells and mast cells (Figure 2). Dandapath et al showed that lymphocytes, plasma cells and macrophages were present in a moderate number in 61.1%, 70.8% and 67.3% of cases respectively. Polymorphs were present in poor numbers in majority of these cases while eosinophils were present in plenty in 48.7% of cases. Plenty to moderate number of mast cells were present in 58.4% cases. [7] In this study, eosinophils were seen in a majority of nasal polyps thereby coinciding with the studies of Dandapath et al, Raymond Slavin and Drake Lee [7, 10, and 11].

Histopathologists often face difficulty in subgrouping the nasal polyp into allergic and non-allergic, (Friedman et al, 1976) or as inflammatory polyp and allergic polyp (Wilkes, 1978).Mygind classified polyps into two groups, those containing large number of eosinophils and those containing large number of neutrophils [11]. In the present study, we could not classify polyps into eosinophil or neutrophil polyps as suggested by Mygind, because non-allergic nasal polyps also showed a significant number of eosinophils [12]. According to Friedmann et al, presence of eosinophils even in variable concentration indicates allergic nasalpolyps. [13] Contrary to the study by Dasgupta et al wherein a majority (67.3%) of the polyps

were of allergic type (74 cases) [14], in the present study, inflammatory nasal polyps were the most predominant type seen (72.5%)(Table 3).

In this study, stroma is significantly associated with severity of disease ($p<0.001$). 39 cases (76.4%) showed moderate to severe edema (Figure 3). Drake-Lee suggested that, polyps are mainly edematous as demonstrated by histological examination [10]. In the study by Dandapath et al, severe to moderate edema of stroma was seen in 74.3% of polyps, a frequent feature of allergic and non-allergic/ inflammatory polyps [7]. Similar results were observed in the present study and those of Friedmann, Shanmugarathnam and Dandapath. [7, 8, 15] According to Kirtsreesakul, nasal polyps often have a poor vascularization and lack vasoconstrictor innervation. The impaired vascular regulation and increased vascular permeability may cause edema and polyp formation. [16] With respect to the vascularity of the polyps, increased vascularity of polyp was seen by Dandapath et al in 86.6% cases [7] compared to 56.9% (37 cases) in the present study (Figure 4). Severe to moderate fibrosis was noted in 23.5% of simple polyps in the present study whereas it was noted in only 13.3% of cases in the study by Dandapath et al. [7]

In the present study, glands were observed in 33.3% (17 cases) and scanty or absence of glands was seen in 66.7 % (34 cases) of polyps. In the study by Dandapath et al, glands were present in 68.1 % of cases [7].Billroth found an increased number of glands that were long, tubular with acinus bulges. He interpreted the glands as new formation and polyps as true hyperplasia of nasal mucosa or adenomas. Frankel felt that the glands of the polyps were identical with those of the nasal mucosa. McKenzie and Hopmann rarely found glands in polyps that they interpreted as myxomatous degeneration of nasal mucosa or as soft fibromas. According to Zuckerkandl, polyps were neither adenomas nor fibromas but rather lesions arising from inflammatory hyperplasia that invade the polyp from the nasal mucosa. [17]

Mucous glands may be found in all polyps and the density of occurrence varies from polyp to polyp in same patient [18]. Tos and Mogensen stated that, mucous glands were found in all polyps studied by the whole mount method, though in many of them only a few glands were found. The density was very low, usually less than 0.5 glands per square mm. Sections from the same patient, on the other hand, showed glands in only 52% of the polyps. This difference is methodological, as hundreds of sections have to be scrutinized to detect a gland in a polyp with a low density. This explains conflicting reports on occurrence and quantity of glands found in polyps. [17]

INFECTIOUS POLYPOIDAL LESIONS

Of the 49 polypoidal lesions of nasal cavity seen in present study, 6 cases (12.2%) were infectious in etiology including three cases each of rhinosporidiosis and aspergillosis.

In our study, the three cases of rhinosporidiosis were all seen in the third decade of life. In a study by Tondon et al, rhinosporidiosis constituted 66.7% (24 cases) of all infectious polypoidal lesions with maximum incidence during the 3rd decade of life coinciding with the results as described by Satyanarayana. [5, 9] According to Iqbal MS [20] and Tondon et al [19], males were predominantly affected coinciding with the present study. In a study by Dasgupta et al, rhinosporidiosis was reported in 55 cases (31.4%), ranging from the first to seventh decade with males (43 cases) more commonly affected [14]. Though the nose is mainly affected, extra-nasal involvement is not uncommon. In the present study, only nasal rhinosporidiosis was reported without involvement of any other organs. Presenting complaints (nasal obstruction, nasal discharge and bleeding), were as observed in the study by Tondon et al. [19] Microscopically, these lesions were lined by ciliated columnar to transitional epithelium with squamous metaplasia. Sporangias in varying stages of development were seen containing endospores.

In the present study, fungal infections constituted 50 % (three cases) of all infectious polypoidal lesions with male predominance seen in the fifth and sixth decades of life. Aspergillus species was the most common causative organism. However, according to Friedmann, the age distribution is broad and can range from infancy to old age, and there is no significant sex distribution. [13] In a study by Zafar et al [3], fungal infections were reported in 5 cases (3.45%), ranging from the 3rd to 4th decade with male to female ratio 1.5:1. In a review of 26 cases of fungal infections by Lulu Ahame Al-Bhlal, highest incidence of cases was in the fifth and sixth decades. [21] Microscopically we observed polypoidal structures lined by respiratory type of epithelium showing septate and branching hyphae

at acute angles surrounded by eosinophils, and plasma cells with areas of fibrosis.

FIBROUS DYSPLASIA

In our study, a single case of fibrous dysplasia was reported in an 18year old female who presented with swelling in the right cheek involving the zygomatic process. Vijayalakshmi Subramanian also reported a case of fibrous dysplasia in maxillary sinus and stated that it was a rare benign non neoplastic lesion [22]. Zafar et al studied 2 cases (1.37%) involving maxilla and similar studies were done by Ruggier et al and T –sai et al [23]. Microscopically, we observed narrow, curved, discontinuous woven bone trabeculae having characteristic curvilinear spicules interspersed with fibrous tissue of variable cellularity. The woven bone trabeculae were not lined by osteoblasts.

TABLE 1: DISTRIBUTION OF SIMPLE NASAL POLYPS ACCORDING TO AGE

Age (years)	No. of cases	Percentage
0-10	1	2.0%
11-20	10	19.6%
21-30	13	24.5%
31-40	13	24.5%
41-50	9	17.6%
51-60	5	9.8%
Total	**51**	**100%**

TABLE 2: SEX INCIDENCE OF SIMPLE NASAL POLYPS

Age	Male	Female	Total	Ratio
0-10	0	1	1	-
11-20	6	4	10	1.5 :1
21-30	8	5	13	1.6 :1
31-40	9	4	13	2.3:1
41-50	5	4	9	1.2:1
51-60	4	1	5	4:1
Total	32	19	51	1.7:1

TABLE 3: COMPARING NON-NEOPLASTIC LESIONS IN DIFFERENT STUDY GROUPS

Diagnosis	Total number of cases	Allergic polyps	Inflammatory polyps	Angiomatous polyp	Male	Female
Dasgupta etal[11] (1997)	110	74(67.3%)	36(32.7%)	-	64	46
Present study (2012)	51	10(19.6%)	37(72.5%)	4(7.8%)	37	14

Figure 1: Gross appearance of nasal polyp showing mucoid cut section

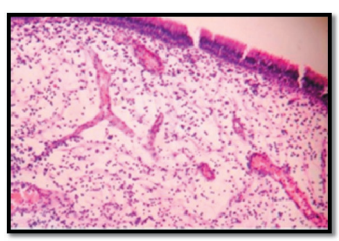

Figure 2: Inflammatory polyp with pseudostratified columnar epithelium and mixed inflammatory infiltrate (H&E10X)

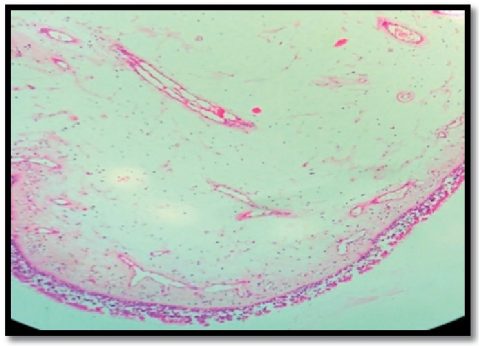

Figure 3: Allergic polyp with pale appearing stroma (H&E10X)

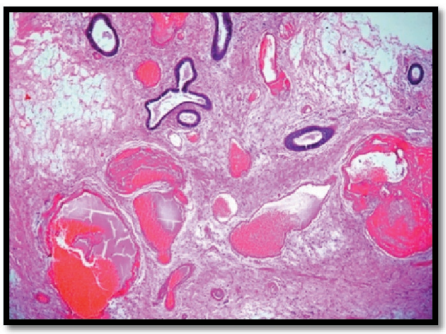

Figure 4: Angiomatous polyp showing numerous congested blood vessels (H&E10X)

CONCLUSION

Polypoidal lesions can range from simple inflammatory polyps to deadly carcinomas. Hence histopathological typing is necessary for proper management of the patient. The purpose of this study was to study these histopathological patterns of polypoidal lesions of nose and paranasal sinuses. In our study, inflammatory polyps were the commonest non-neoplastic lesion. Differentiation of simple nasal polyps based on inflammatory infiltrate, vascularity and gland histology into inflammatory, allergic, and angiomatous types was not possible. Although a majority of nasal polyps are inflammatory lesions secondary to infection, allergy, or idiopathic causes, a variety of conditions may also present as nasal polyps ranging from benign lesions to malignant nasal tumors. Therefore, a clinician's diagnosis on the basis of history and clinical examination is inadequate and should be justified by sending all nasal polyps for histopathological examination.

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Health Related Quality of Life (HRQOL) of Thalassaemic Patients: A Review Study

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ABSTRACT

Thalassemia is an inherited blood disorder characterized by less hemoglobin and fewer red blood cells in your body than normal. Several types of thalassemia exist, including alpha-thalassemia, beta-thalassemia major/ intermedia, Cooley's anemia and Mediterranean anemia. Some aspects of thalassemia major and its associated complications are expected to impact on the Quality of life. Regular blood transfusions are essential for the management of haematological conditions.

Keywords: *Blood, Thalassemia, alpha-thalassemia, beta-thalassemia inter-media thalassemia, Quality of life.*

INTRODUCTION

Blood is a specialized body fluid that delivers necessary substances to the body's cells such as nutrients and oxygen and transports waste products away from those same cells. Blood accounts for 8% of the human body weight. The average adult has a blood volume of roughly 5 litres (1.3 gal), composed of plasma and several kinds of cells (occasionally called *corpuscles*); these formed elements of the blood are erythrocytes (red blood cells), leukocytes (white blood cells), and thrombocytes (platelets). By volume, the red blood cells constitute about 45% of whole blood, the plasma about 54.3%, and white cells about 0.7%. Those disorders marked by aberrations in structure or function of the blood cells or the blood-clotting mechanism. Although many other diseases may be reflected by the blood and its constituents, the abnormalities of red cells, white cells, platelets, and clotting factors are considered to be primary hematologic disorders. [1]

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Thalassemia is an inherited blood disorder characterized by less hemoglobin and fewer red blood cells in your body than normal. Several types of thalassemia exist, including alpha-thalassemia, beta-thalassemia inter-media, Cooley's anemia and Mediterranean anemia. [2]

The name thalassemia derived from a combination of two Greek words: thalassa meaning the sea that is the Mediterranean and anemia ("weak blood"). Another term found in literature, although infrequently, is Cooley's anemia and it was believed to be endemic. Prof. Cooley Thomas, a pediatrician in the USA who first described the clinical characteristics of this disorder in patients of Italian origin 1925. The name thalassemia was coined by the Nobel Prize winning pathologist George Hoyt Whipple (1878-1976). Whipple and Bradford (1936) studied the erythroblastic anemia of Cooley and associated pigment anomalies simulating hemochromatosis. [3]

CAUSES OF THALASSAEMIA

Thalassemia is caused by mutations in the DNA of cells that make hemoglobin — the substance in red blood cells that carries oxygen throughout the body. The mutations associated with thalassemia are passed from parents to children. The mutations that cause thalassemia disrupt the normal production of hemoglobin and cause

low hemoglobin levels and a high rate of red blood cell destruction, causing anemia. When a person become anemic, his blood doesn't have enough red blood cells to carry oxygen to the tissues — leaving him fatigued. [4]

Thalassemia affects approximately 4.4 of every 10,000 live births throughout the world. It causes males and females to inherit the relevant gene mutations equally because it follows an autosomal pattern of inheritance with no preference for gender.

TYPES OF THALASSAEMIA

The two types of thalassaemia are alpha thalassaemia and beta thalassaemia. In alpha thalassaemia, having one faulty gene will cause little or no effect to a person. two faulty genes are associated with mild anemia. three mutated genes result in hemoglobin h disease that needs regular blood transfusions to treat chronic anemia. unborn babies with four faulty genes are unlikely to survive pregnancy. Beta thalassaemia also has different forms: beta thalassaemia major, also called BTM, requiring lifelong regular blood transfusions. BTM is the most common form of the condition in the UK and the most serious. beta thalassaemia inter-media is also known as BTI or non-transfusion dependent thalassaemia or NTDT. [5]

Alpha-thalassemia is particularly common among populations of Southeast Asian descent, and there are a high number of carriers in Sub-Saharan Africa and Western Pacific regions. Beta-thalassemia is most common among populations of Mediterranean, African and South Asian ancestry. Sub-Saharan Africa: 0% of the population has a thalassemia trait, up to 50% may be a genetic carrier. Western Pacific: 0% of the population has a thalassemia trait, up to 60% may be a genetic carrier. [6]

PREVALENCE

Anyone may carry a thalassaemia gene. On average, 3 in 100 of the world's population have a thalassaemia gene (and therefore have a thalassaemia trait). The chance of having a thalassaemia gene varies, depending on family origin. Thalassaemia is more common in people whose origins are Mediterranean, Asian or African. For example, beta thalassaemia genes are carried by: 1 in 7 Greek Cypriots, 1 in 12 Turks, 1 in 20 Asians, 1 in 20-50 Africans/Afro-Caribbeans (depending on which part of Africa your family comes from) and 1 in 1,000 English of North European origin. [7]

India is a large Southeast Asian country with a population of over one Billion. An estimated 1-3% of the populations are carriers of beta thalassemia, a figure rising up to 17% in some ethnic groups . About 6,000 children are born with thalassemia major each year, more than 30% of births with a major thalassemia syndrome in South East Asia. Thalassemia is very high in Punjabi, Sindhi, Gujarati, Bengali, Parsee, Lohana and certain tribes community, i.e. Northern, Western and Eastern parts, while it is much less in the south of India. [8]

The overall prevalence of β-thalassemia in India is 3-4% with an estimate that around 10,000-12,000 children are born every year with β-thalassemia major. A recent study in India showed that the overall prevalence of β-thalassemia trait was 2.78 % and varied from 1.48% to 3.64% in different states, whereas the prevalence of β-thalassemia trait in 59 ethnic groups varied from 0% to 9.3% respectively. β-thalassemia is prevalent in Mediterranean countries, the Middle East, Central Asia, India, Southern China and countries along the north coast of Africa and in South America. α-thalassemia is prevalent in peoples of Western African and South Asian descent. About 15% of American blacks are silent carriers for α-thalassemia.

CMC Hospital says that, the thalassaemia prevalence in India is 2-14% in different regions of the country. In Punjab the prevalence reported is 5 - 6.5%. Although measures are being taken to curtail the incidence of thalassaemia major babies born in the state, the existing patients find it difficult to sustain themselves with regular blood transfusions and iron chelation as the average cost of transfusion-chelation in the country is about 2-4 lakhs/year depending on the age and weight. The average life span of a thalassaemia major patient in India is approximately 20-25 years before he succumbs to health problems related to iron overload or infections related to blood transfusions. [9]

SIGNS AND SYMPTOMS

Symptoms of Thalassemia will depend on the type of thalassemia. Thalassemia minor usually doesn't cause any symptoms. If it does, it causes minor anemia. Beta-Thalassemia-Beta-thalassemia comes in two serious types, which are thalassemia major, or Cooley's anemia, and thalassemia inter-media. The symptoms of thalassemia major generally appear before

a child's second birthday. The severe anemia related to this condition can be life-threatening. Other signs and symptoms include: Fussiness, paleness, frequent infections, a poor appetite, failure to thrive, jaundice, which is a yellowing of the skin or the whites of the eyes, enlarged organs. [10]

Approximately 5% of the worldwide population has a variation in the alpha or beta part of the hemoglobin molecule, although not all of these are symptomatic and some are known as silent carriers. In fact, only 1.7% of the global population has signs as a result of the gene mutations, known as a thalassemia trait. However, particular ethnic groups are more likely to be affected and 5-30% of the population may be symptomatic among these groups. [11]

MANAGEMENT OF MILD THALASSEMIA

The management of Mild thalassemia patients with thalassemia traits does not require medical or follow-up care after the initial diagnosis is made. Patients with β-thalassemia trait should be warned that their condition can be misdiagnosed for the common Iron deficiency anemia. They should eschew empirical use of Iron therapy; yet iron deficiency can develop during pregnancy or from chronic bleeding. Counseling is indicated in all persons with genetic disorders, especially when the family is at risk of a severe form of disease that may be prevented. Severe thalassemia : Patients with severe thalassemia require medical treatment. A blood transfusion regimen was the first measure effective in prolonging life. [12]

DIAGNOSIS AND TREATMENT

Some aspects of thalassemia major and its associated complications are expected to impact on the Quality of life. The diagnosis and treatment of the thalassemia major could have an impact on family stability and family dynamics and bone deformities and short stature could induce poor self-image. Also, frequent hospital visits for transfusion, nightly subcutaneous infusions, delayed or absent sexual development and impaired fertility and complications such as heart disease, bone disease, diabetes, infections and Uncertainties about the future and difficulties in long-term planning could be mentioned as a result of thalassemia major. [13]

World Health Organization (2005) defined the quality of life as: "An individual perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment. [14]

There are few inconsistent studies about the QOL in patients with thalassemia major and most of these investigations obtained the results based on interviews with patients, careers, doctors and nurses with the focus on coping strategies and they did not mention control group. Previous investigations showed that treatment and cultural differences did not have a major effect on the QOL. Also, results indicated that patients had moderately impaired overall health and overall QOL and other serious hemoglobinopathies such as sickle cell disease (SCD) might induced poor QOL However, there might be differences in the domains affected as well as the extent of variation across specific chronic disorders. [15]

DISCUSSION

A study conducted by Li Ping Wong et al, (2011) in Malaysia, regarding perspectives, attitudes, and perceived needs thalassemia for a multi-ethnic population. The result shows that only 68 % multi-ethnic population heard about thalassemia. [16]

A descriptive study conducted by Ajay F Christopher et al (2013) in Bareilly, Western UP to examine the prevalence of five common β-thalassemian mutations. The results of the study revealed that among the five common mutations prevalent in India, they were able to detect all except codon 26 G-A (c. 79G > A), which is prevalent in northeast India. These four mutations accounted for 58% of the total number of their patients. This study provides evidence that the pattern of mutations in Western U.P. is different from the rest of India and even from the neighboring states (Delhi and Punjab). Hence, these findings can be called unique to Western U.P. [17]

A study conducted by Mandal S K. et.al (2016) in Eastern India, regarding prevalence of thalassemia and hemoglobinopathy The results of study showed normal Hb pattern was observed in (87.83%) cases and abnormalities were detected in (12.17%) patients. β (beta) thalassemia trait was the commonest abnormality

found (4.60%) patients. HbE trait was found in (3.02%) patients, β thalassemia major/intermedia in (1.66%) cases, and Eβ thalassemia in 1,384 (1.16 %) cases. [18]

A study conducted by Mohanty. D et.al (2013) in India. The results of the study showed that prevalence of β-thalassemia trait was 2.78 %, HbE trait was mainly seen in Dibrugarh in Assam (23.9 %) and Kolkata in West Bengal (3.92 %). In six ethnic groups from Assam, the prevalence of HbE trait varied from 41.1 to 66.7 %. [19]

An another study done by Syed Ali Ammad (2011) in Karachi, regarding parents opinion of (QOL) in thalassaemic children. The result shows that the majority of thalassaemic patients (61%) were boys with a mean age of 8.5 ±2.26 years for both sexes. parents for various aspects of QOL in their affected children. Hence, it is crucial to provide proper health education to parents for better understanding of the disease and rehabilitation of their thalassaemic children. [20]

A study conducted by Mohsen S Elalfy (2014) in Egypt , regarding x HRQOL of Egyptian β-thalassemia major children and adolescents population. The result shows that the control group had higher QOL scores in all domains at the start of the study (P<0.0001). Experimental had lower total QOL scores compared to control group (P = 0.004). High pre-transfusion hemoglobin levels and low serum ferritin levels were independent predictors of better QOL scores. [21]

An another study done by Abdullah S. Amoudi (2014) in King Abdulaziz University Hospital, Jeedah, Saudi Arabia to assess the HRQOL in the thalassemia adult patients and clarify how effective the management is of these patients and whether a change in care is warranted. As a result, however, patients with these conditions are susceptible to the development of transfusion-dependent iron overload (hemosiderosis or secondary iron overload). In the absence of a naturally occurring physiological mechanism for the removal of excess iron in the body, life-long treatment and adherence to iron chelation therapy (ICT) are necessary to prevent the morbidity and mortality that may result if excess iron is allowed to accumulate. [22]

A study conducted by Ansari (2014) at Tehran in Iran, regarding HRQOL , in patients with thalassemia major. The results showed that the QOL in all 6 dimensions saws lower in patients compared to the controls (P< 0.05).Also age, higher education level, lower ferritin level and using oral iron chelator were associated with better QOL scores. [23]

An another study done by John Porter (2012) regarding HRQOL , treatment satisfaction, adherence and persistence in β-Thalassemia and Myelodysplastic Syndrome Patients with Iron Overload Receiving Deferasirox. The result shows that β-thalassemia and MDS patients reported lower SF-36 domain scores at baseline. Low levels of treatment satisfaction, adherence, and persistence were also observed. HRQOL improved following treatment with deferasirox, particularly among β-thalassemia patients. Furthermore, patients reported high levels of satisfaction with deferasirox at end of study and greater ICT adherence, and persistence. [24]

CONCLUSION

There many consequences, complications of thalassaemic patients and their life style. There are many factors which is associated with the poor quality of life of thalassaemic patients. Regular blood transfusions are essential for the management of haematological conditions such as β-thalassemia major and myelodysplastic syndromes.

Investigators had vast experience in dealing with Thalassemia patients. So investigators decided to conduct an interventional study to evaluate the effectiveness of self instructional module on quality of life with thalassemia.

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Diagnostic Efficacy of Fine Needle Aspiration Cytology in Evaluation of Lymphadenopathy with Histopathological Correlation

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ABSTRACT

Background & Objectives: Fine needle aspiration cytology (FNAC) is an integral part of diagnosis in patients with lymphadenopathy due to its simplicity and minimal complications. The aim of this study is to evaluate the efficacy and reliability of FNAC in evaluation of lymphadenopathy and to correlate it with histopathological results.

Method: One year prospective study was conducted on 208 patients with Lymphadenopathy who underwent FNAC in our institute. Hypocellular slides were excluded from the study. Diagnostic accuracy was assessed by comparing the cytopathological diagnosis with subsequent histopathological results of excised lymph nodes wherever possible. The sensitivity, specificity, positive predictive value, negative predictive value and discordance rate were calculated.

Results: There was male preponderance of cases. Out of 208 cases, 112 (53.8%) were benign, 76 (36.5%) were malignant and 20(9.6%) were unsatisfactory due to poor cell yield. 48 patients underwent biopsy and histopathological correlation was obtained. The results of FNAC were consistent with biopsy in all except for 4 cases. The overall diagnostic sensitivity, specificity, positive predictive value and negative predictive value of FNAC of peripheral lymphadenopathy were 80%, 100%, 100% and 90.3% respectively. The overall diagnostic accuracy was 88.4%, while the overall discordance rate was 11.6%.

Conclusion: The ease of FNAC along with high diagnostic accuracy makes it desirable for diagnosis for patients with peripheral lymphadenopathy.

Keywords*: FNAC, Histopathology, Lymphadenopathy.*

INTRODUCTION

Enlarged palpable lymphadenopathy is a commonest clinical presentation of patients attending outpatient clinics in most hospitals.[1] The commonest sites of lymphadenopathy are cervical, axillary, inguinal region followed by mediastinal, retroperitoneal and iliac region.[2]

FNAC has been a rapid efficient and inexpensive technique in evaluation of lymphadenopathy in all age groups.[3] The aetiology varies from an inflammatory process to a malignant process.[4]

Hence, this prospective study was undertaken with the following objectives,

1. To review the cytomorphological spectrum of lymph node lesions with respect to age, sex and site of lymphadenopathy.
2. To evaluate the diagnostic efficacy of FNAC in

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the diagnosis of lymphadenopathy.

MATERIALS & METHOD

Prospective study of 208 patients of Lymphadenopathy presenting to department of Pathology, Vydehi Institute of Medical Sciences and Research Centre from October 2014 to September 2015 were taken up for the study. The study was conducted after obtaining ethical committee approval from the institute and consent from patients. All patients with enlarged superficial lymph nodes presenting to our department were included in our study.

FNAC was done by the Cytopathologist by using 21-24 gauge needle attached to 10 ml syringe. Wet fixed slides in absolute alcohol were stained with Hematoxylin & Eosin and Papanicolaou stain. Air dried slides were stained with May Grunwald Giemsa stain. In each case one, slide was kept unstained and ZN staining was done if a cytological diagnosis of granulomatous lymphadenitis was made.

In each studied case, a brief history, examination and radiological details including age, site, consistency and duration of lymphadenopathy, any significant past history, imaging details were obtained. The stained smears were examined to determine the cytomorphological features. Hypo cellular smears were excluded from the study.

Lymph node biopsy was performed by the surgeon only in 43 cases and the biopsy sample was subjected to histopathological examination after fixing in 10% formalin. The diagnostic accuracy of FNAC was assessed by comparing cytological results with the subsequent histopathological findings.

FINDINGS

A total of 208 patients were included in the study. The age of the patients ranged from 5 years to 73 years. 20 patients were in pediatric age group and rest 188 were above 18 years of age. Among these, 115 were males and 93 females as depicted in Table 1.

Table 1: Age and sex distribution of Cases:

Age group (years)	Males (n=115)		Females(n=93)		Total (n=208)	
	No	Percentage	No	Percentage	No	Percentage
0-10	6	5.21	2	2.15	8	3.84
11-18	8	6.95	4	4.3	12	5.76
19-30	28	24.3	15	16.1	43	20.7
31-40	20	17.4	16	17.2	36	17.3
41-50	19	16.5	31	33.3	50	24.03
51-60	19	16.5	17	18.3	36	17.3
61-73	15	13.04	8	8.6	23	11.05

The commonest lymph node sampled was cervical lymph node consisting of 153 cases (73.5%) as shown in Table 2.

Table 2: Anatomical site of lymphadenopathy:

Site	No of cases	Percentage (%)
Cervical	153	73.5
Axillary	25	12
Inguinal	23	11
Submandibular	7	3.36

The cytological results were classified into non neoplastic and neoplastic lesions. 112 cases were non neoplastic and 76 were neoplastic lesions. 20 cases were excluded from the study as the material was insufficient for diagnosis.

Out of 112 non neoplastic cases, 60 were granulomatous lymphadenitis, 43 cases reactive lymphadenitis, 7 cases of suppurative lymphadenitis and 2 cases of tubercular lymphadenitis. Among 76 neoplastic cases, 70 cases were metastatic carcinoma while 6 were primary tumour comprising 4 cases of Hodgkin's lymphoma and 2 cases of Non Hodgkin's lymphoma as depicted in Table 3.

Table 3: Cytological results of 208 cases:

		No of cases	Percentage
1. Benign lesions (112 cases)	Granulomatous Lymphadenitis	60	28.8
	Reactive Lymphadenitis	43	20.7
	Suppurative Lymphadenitis	7	3.36
	Tubercular Lymphadenitis	2	0.96
2. Malignant lesions (76 cases)	Hodgkins Lymphoma	4	1.92
	Non Hodgkins Lymphoma	2	0.96
	Metastatic	70	33.7
3. Inadequate cases		20	9.61

The smears of reactive lymphadenitis showed polymorphous population of lymphocytes and tingible body macrophages. Granulomatous lymphadenitis was diagnosed by the presence of epitheloid cell granulomas with or without giant cells, absence of necrosis and ZN stain negative. Suppurative lymphadenitis cases showed predominantly neutrophils, necrotic debris and other lymphoid cells. The criteria by which diagnosis of tubercular lymphadenitis was established included presence of epitheloid cell granulomas, caseous necrosis with or without giant cells and Ziehl Neelson stain positive for acid fast tubercle bacilli.

Malignant lesions comprised 70 cases of metastatic lesions and 6 cases of primary lesions. Metastatic lesions included Squamous cell carcinoma (15 cases), Adenocarcinoma (12 cases), undifferentiated carcinoma (10 cases), small cell carcinoma (3 cases), Ductal carcinoma breast (14 cases) and metastasis from Papillary thyroid carcinoma (16 cases).

Out of 6 primary lesions 4 cases were Hodgkin's lymphoma (HL) and 2 cases of Non Hodgkin's Lymphoma (NHL). HL showed mixed population of cells consisting small lymphocytes, eosinophils, neutrophils and classical Reed- Sternberg (RS) giant cell. NHL showed monotonous population of lymphoid cells with irregular nuclear membrane and inconspicuous nucleoli.

Comparison of cytological and histological results was possible in 43(20.7%) cases. Among 31 cytologically benign cases, 28 (90.32%) were proved to be benign on histopathology (True negative) and 3(9.67%) cases were diagnosed as malignant on histopathology (False negative).

All the 12 cytologicaly diagnosed malignant cases turned out to be malignant on histopathology also. There was no false positive case.

Table 4: Comparison of cytological diagnosis with histopathological diagnosis:

Cytological diagnosis	**Histopathological diagnosis**		**Total**
	Benign	Malignant	
Benign	28	3	31
Malignant	0	12	12

The overall sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) of FNAC of lymph nodes were 80%,100%,100% and 90.3% respectively. The overall diagnostic accuracy was (38/43) 88.4% and discordance rate was (5/43) 11.6% as depicted in Table 5.

Table 5: Diagnostic Reliability of FNAC when compared with histopathological diagnosis:

Sensitivity	80%
Specificity	100%
PPV	100%
NPV	90.3%
Diagnostic accuracy	88.4%
Diagnostic discordance	11.6%

Among the misdiagnosed cases, it was found

that 3 cases of lymphoma were diagnosed as reactive lymphadenitis, 2 cases of reactive lymphadenitis were diagnose as granulomatous and 1 benign case was diagnosed as malignant on cytological smears as shown in Table 6.

Table 6: Cytologically misdiagnosed cases:

No. of cases	Cytological diagnosis	Histopathological diagnosis
3	Reactive lymphadenitis	Lymphoma
2	Granulomatous lymphadenitis	Reactive lymphadenitis

DISCUSSION

Peripheral lymphadenopathy is one of the most commonest clinical presentation of the patients attending inpatient and outpatient department. It requires early and accurate diagnosis to initiate the treatment. FNAC is safe, easy, inexpensive method of diagnosis which also reduces the risk of surgical biopsies and reduces the cost of the patients. The pattern of lesions varies from non-neoplastic like granulomatous, suppurative, reactive and tubercular to neoplastic lesions like metastasis and lymphoma.[1]

Hafez NH et al and Babu GS et al stated that lesions arising in lymph node can be found in early to advanced age.[1, 5] It correlates well with the present study as we found the youngest patient presenting was 5 years and the oldest patient was 73 years of age.

In our study the most common site of involvement was cervical lymph nodes, which was followed by axillary group of lymph nodes and inguinal lymph nodes. Our observations are in agreement with the findings of Vasudeva Rao T et al and Egea et al.[6,7]

In the present study 53% cases were benign and 36% cases were malignant. Other studies also reported benign lesions were more frequent than malignant lesions.[8,9]In our study among the benign lesions the maximum cases were of granulomatous lymphadenitis 53.57% (60/112) followed by reactive hyperplasia 38.4% (43/112). This was not concordant with most of the studies as they got reactive lymphadenitis as the commonest benign lesion. [10,11]

Ziehl Neelson staining for acid fast bacilli was positive in 0.96% of cases in the present study. This result was not concordant with most of the other studies, as ZN positivity turned out to be more in other studies.

In our study 2 cases of reactive lymphadenitis were falsely diagnosed as granulomatous on FNAC as the endothelial cells were misinterpreted as epitheliod cells. 3 cases of Lymphoma were diagnosed as reactive on cytology. The discordance being the Hodgkin cell misinterpreted as immunoblast on cytological smears.

Lymph node aspirates in 76 cases showed malignancy. Out of 76 cases, 4 lesions were primary lesions of lymph node comprising 4 cases of Hodgkin lymphoma and 2 cases of Non Hodgkin lymphoma. The maximum number of malignant lesions comprised of metastatic deposits. The finding of metastatic deposited correlated well with other studies. In the present study 92.10% (70/76) cases showed metastatic deposits, while the studies done by Mohanty et al and Manas et al found 82.3% and 57.3% cases of metastatic deposits respectively.[10,11]

Among the metastatic deposits the most number of cases were from squamous cell carcinoma which comprised of 22.8%. Similar findings were described by Hajdu et al and Hemalatha et al.[8,12]

The present study showed 100% specificity, 80% sensitivity, 100% positive predictive value 90.3% negative predictive value and 88.4% diagnostic accuracy. Our results were comparable with the study done by Babu et al, Pilloti et al and Lee et al. [5,13,14]

CONCLUSION

FNAC is a well established and accurate method of diagnosis in patients with lymphadenopathy as its results compare favourably with the results of surgical biopsy. FNAC is an important, safe and inexpensive diagnostic procedure to render the diagnosis of both neoplastic and non neoplastic lesions. Lack of representative sample is the main cause of false negative reports. This can be overcome by guided FNAC or by multiple aspirations. Although the numbers of cases with histopathological correlation were less, the role of FNAC as an initial investigative procedure remains undisputed because of its high diagnostic accuracy.

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Comparative Study of ABO and RH Blood Grouping by Slide, Test Tube and Gel Card Methods

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ABSTRACT

A Comparative study was carried out on 500 blood donors attending blood bank of a tertiary health care hospital in western UP over a period of 6 months from January 2016 to June 2016.Out of the 500 subjects; only 100 were tested using Gel card method while Slide and Tube methods were used for all cases. Among the subjects, 487 (97.4%) were males and 13 (2.6%) females within the age range of 18-60 years. 477 (95.4%) of the donors were found to be Rh positive while 23 (4.6%) were Rh negative. In comparison of the three methods, overall agreement between methods was good to excellent, with identical results obtained in 97 of 100 (97%) samples tested with all 3 methods. The little difference in 3 of 100 (3%) samples, which was due to the weak reaction between antigen-antibody in the 3 samples, was resolved with the aid of microscope which made the result 100% identical. Results acquired with Gel Card Methods were considered the simplest to interpret and could readily be archived by making a photocopy, which was not possible with the other methods. This study shows that Gel Card Method is better than Slide and Conventional Spin Tube Methods because of its simplicity, stability of results, reproducibility, absence of wash phase with comparable sensitivity and specificity.

Keywords: *ABO, Rh Blood grouping, Slide, Test Tube, Gel Card Methods*

INTRODUCTION

Blood is a circulating tissue composed of fluid plasma and cells (red blood cells, white blood cells and platelets).The term blood group is generally based on the presence or absence of certain antigens on the erythrocyte membrane. These are identified by characteristic agglutination reactions with specific antibodies and this field is referred to as blood group serology .[1]In clinical practice, the ABO blood group system is one of the most important since the A and B epitopes may provoke a strong immune reaction. With the introduction of blood typing and cross-matching techniques, blood transfusion became not only a simple but also a much safer procedure.[2] Karl Lansteiner was the first person to put forward the ABO blood group system in 1901. The determination of the ABO group reposes on demonstration of red blood cell surface antigens. Therefore known sera, directed against these antigens, are used.[3]

Determination of ABO group by both Forward (Direct) and Reverse (Indirect) grouping is important in pre-transfusion studies of patients and donors as well as in cases of obstetric patients. Reverse grouping is a cross check for forward typing. Both tests should be done side by side and the results of both methods should agree. There are different techniques to determine ABO and Rh blood group in the laboratory: Slide, Test Tube & Gel Card Methods. In each technique results are interpreted based on the presence or absence of agglutination reaction. Agglutination reaction is interpreted as a positive (+) test result indicating the presence of specific antigen on erythrocytes or antibody in the serum of an individual. No agglutination reaction produces a negative (-) test indicating the absence of specific antigens on erythrocytes or antibody in the serum of an individual. [4]

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In transfusion medicine, D antigen is the most important one after A and B antigens. If the D antigen exists it is named Rh positive, if not it is named Rh negative. Rh blood group system includes D, C, c, E, e and other 400 antigens.[5]

In the slide method, reagents that produce strong agglutination within 1-2 minutes are normally used and the tests are employed simply for rapid determination of ABO and Rh D groups. As the results are read macroscopically, strong cell suspension of 10-20% or more is used to facilitate the detection of agglutination. Tube testing requires dilution of blood with saline to make 2 -5% cells suspension. In the tube method, patient's red blood cells are mixed with grouping antisera to allow antibody/antigen binding reactions to take place and then to centrifuge. The period of incubation is usually 45 minutes. The red cells are allowed to sediment or the tubes are centrifuged and examined for agglutination. In case of gel test, the antibody containing serum is mixed with red cells, incubated on top of a dextran gel containing anti-sera reagent and then centrifuged. Unagglutinated red cells pass through gel whereas agglutinated cells are retained.[6]

Red blood cells serologic tests were firstly performed on glass slides for ABO and Rh D typing. The limitations of this slide method are false negative results, difficulty in interpretation of weak reaction, cell aggregation due to dry reaction mixture and the most important one, inability to perform serum typing, antibody screening and compatibility tests. The development of saline tube test and anti-globulin test replaced the slide method.[7] The tube test is the most performed method in the laboratories. Although manual reading with the naked eyes is required for grading the agglutination strength and automation of the test is difficult.[8] The micro column agglutination test (MT) is the latest method for blood grouping, antibody screening and compatibility test.[7] For the gel card test, one of the column agglutination techniques, a commercially prepared card with micro columns containing gel particles is used. The gel card test is more qualitative in grading the strength of agglutination reaction. Additionally, it is less time consuming and uses smaller volumes of serum and RBCs, and can be used as part of automated system but it is expensive.[8]

AIMS AND OBJECTIVES

- To carry out ABO and Rh blood grouping by Slide, Test Tube and Gel Card methods.
- To compare the results of ABO and Rh grouping by the above three (3) methods with regard to accuracy, efficiency and cost.

MATERIALS AND METHOD

The comparative study was carried out on 500 blood donors attending blood bank of a tertiary health care hospital in western UP over a period of 6 months from January 2016 to June 2016.Detailed information of the donors were recorded on donor proforma. Out of the 500 subjects, only 100 were tested using Gel card method while Slide and Tube methods were used for all cases. Standard procedure was followed in running each sample by all 3 methods and results were recorded.

RESULTS

A total of 500 blood donors attending blood bank of CSSH were studied over a period of 6 months from January 2016 to June 2016.Detailed information of the donors were recorded on donor proforma. Among the subjects, 487 (97.4%) were males and 13 (2.6%) females. 477 (95.4%) of the donors were found to be Rh positive while 23 (4.6%) were Rh negative. In comparison of the three methods, agglutination was seen macroscopically in 97 of the 100(97%) subjects by both Slide and Tube methods whereas in the Gel card method used for only 100 cases, it was seen in whole subjects. This difference was due to the weak reaction between antigen-antibody in the 3 samples which was resolved with the aid of microscope. The distribution of ABO and Rh D blood groups among study population is shown in table 1. Table 2 represents sex distribution age wise. Table 3 shows finding of the test by the 3 methods while Table 4 shows the observations regarding different parameters of the study in comparing the three methods. Criteria of Accuracy and Efficiency were decided on following points:

Good: In Slide Method, results were available early but drying effect, weak antigen etc could result in wrong interpretation.

Very Good: Tube Method, incubation and centrifugation gave better and relatively stable result.

Excellent: Gel Card Method, showed perfect grading of agglutination as +4, +3 or +2 and results were more stable.

Table 1: Distribution of ABO and Rh(D) among study population

Blood Group	Total Subjects n(%)		
	Total No.	Rh Positive	Rh Negative
A	102 (20.4)	95 (19.0)	7 (1.4)
B	197 (39.4)	188 (37.6)	9 (1.8)
AB	55 (11.0)	53 (10.6)	2 (0.4)
O	146 (29.2)	141 (28.2)	5 (1.0)

Table 2: Sex Distribution Age Wise

Range	Male number (%)	Female number (%)	Total (%)
18-25	171 (34.2)	3 (0.6)	174 (34.8)
26-40	258 (51.6)	8 (1.6)	266 (53.2)
41-50	48 (9.6)	1 (0.2)	49 (9.8)
51-60	10 (2)	1 (0.2)	11 (2.2)
Total	487 (97.4)	13 (2.6)	500 (100)

Table3: Number of Subjects

Blood Grouping Macroscopically	Positive by Slide Method	Positive by Test Tube Method	Positive by Gel Card Method	Total
No. of Subjects	497* out of 500	497* out of 500	100 out of 100	500

*Agglutination could be seen in remaining three by microscopic examination.

Table 4: Comparison of the Three Methods

Test	Accuracy and Efficiency	Cost	Reproducibility
Slide	Good	Less	Fail
Test Tube	Very Good	Less	Fair
Gel Card	Excellent	High	Excellent

DISCUSSION

The slide test is relatively the least sensitive method among others for blood group determination, but due to its prompt results, it is very much valuable in emergency cases. The agglutination or blood clumping pattern can be visually observed from which the ABO and Rh D type of blood can be determined. The test completes in 5–10 minutes and is inexpensive, which requires only a small volume of blood typing reagents. However, it is an insensitive method and only useful in preliminary blood group matching for getting an early result. The test cannot be conducted for weakly or rarely reactive antigens from which the results are difficult to interpret and additionally, a low titer of anti-A or anti-B could lead to false positive or false negative results. It is not reliable enough for completely safe transfusion. [9]

In comparison to the slide test, the tube test is more sensitive and reliable; therefore, it can be used conveniently for blood transfusion. For precise blood grouping, the test tubes can be categorized according to the extent of blood clumping. The purpose of centrifugation is to ensure enhanced chemical interactions, particularly for weaker antibodies to react, thus leading to agglutination. Some potentiators could also be added to promote the agglutination; moreover, the long incubation of tubes also favors these reactions without drying of the test samples. In a similar fashion, in reverse grouping the blood serum is treated against erythrocyte groups of A1 and B and the subsequent agglutination pattern is monitored. The grading of agglutinates in both forward and reverse grouping is useful in comparing the difference in the strength of hemolysis reactions. In general, the tube method is much more sensitive than the slide test and requires a low volume of reagents, and some unexpected antigens can also be detected; therefore, it is a better option for safer transfusions. However, in infants, reverse grouping is somewhat difficult to perform, since they produce insufficient amounts of antibodies to be determined.[10]

In the present study, Gel column technology was noticed to be easy to perform and gave excellent results in detecting clinically significant, weakly reacting antibodies. Similar results have been obtained by others. Additionally, test performance variability was reduced by elimination of technique dependent steps such as red cell button re-suspension. Stable gel reactions allow for equivocal results obtained during off hours to be reviewed and interpreted by experienced transfusion service technologists. The no-wash procedure may reduce blood borne pathogen exposure in the laboratory testing environment. These advantages are of particular importance for the smaller laboratory, where less experienced generalists may perform red cell compatibility testing.[11]

Overall agreement between blood-typing methods was good to excellent, with identical results obtained in 97 of 100 (97%) samples tested with all 3 methods. The little difference in 3 of 100 (3%) samples was rectified with the aid of microscope which made the result 100% identical. Among the methods that involved interpretation of red blood cells agglutination in a suspension, the distinction between positive and negative anti-A and anti-B antibody results was good with Slide and Tube methods. All positive Gel reactions were 3+ or 4+. Results acquired with Gel methods were considered the simplest to interpret and could readily be archived by making a photocopy, which was not possible with the other methods. Digital photography could have been used to capture the results from all methods, although this was difficult to accomplish with the Tube method. The Gel, Slide, and Test Tube Methods were all 100% sensitive and specific for detection of the antigens. Compared with the Tube method, which is considered the original gold-standard method, the previous studies revealed excellent concordance of typing results by use of various techniques, and our survey confirmed those results. In the present study, the cutoff of 2+ agglutination was used to differentiate between positive and negative test results. This cutoff was in keeping with the published guidelines and manufacturer's recommendations for Gel, Slide, and Tube assays.[12] Considering that most positive reactions are 3+ or 4+ and that any 1+ reaction obtained by use of the Slide or Tube method is difficult to accurately recognize, a 2+ cutoff appeared safer to use and did not noticeably change the typing accuracy. Subjective test interpretation is a potential problem with any of the methods used in our study but is of particular concern when agglutination is scored in an RBC suspension because test interpretation is dependent on the time of reading and degree of agitation applied by the operator.[13] When the Slide and Tube methods were used, the distinction between positive and negative results was cleared. This was because there were smaller numbers of 1+ and 2+ results with the Slide and Tube methods, and such results may be confused, altering test interpretation. The Gel method was advantageous in this respect because the test results are fixed, more objectively scored, and relatively stable over time, allowing results to be photocopied or viewed by multiple people and archived in laboratory or medical records.[10]

In human transfusion medicine, blood-typing errors remain a considerable problem, with ABO-mismatched transfusions accounting for 22% of transfusion-related deaths reported in the United States in 2008.[12] Bedside ABO typing kits, which are used only as a final check prior to blood administration, are recognized to have an error rate of approximately 30%, and the experience of the nurse performing the test has a significant effect on test accuracy.[13]

By contrast, when blood typing is performed at a centralized laboratory that specializes in compatibility

testing, the error rate is reduced to approximately 1 in 3,400, with most of these errors being clerical errors in patient and sample identification and recording rather than related to methods used. Therefore, human patients are blood typed and cross matched prior to each transfusion event. The commercially available Gel and original Tube laboratory based methods had a higher degree of agreement.[4]

Our findings are in agreement with other studies. Swarup D et al[14] pointed out that gel test increases standardization of laboratory techniques and introduces more objective reading of hemagglutination reaction. Complete tests remain stable within the gel for a long time, allowing rereading and it can be photocopied. The disposal of plastic cards by incineration is easy. Swarup also states that ID gel system is a simple, sensitive, rapid and innovative method for detection of antigen antibody hemagglutination reaction.

CONCLUSION

This study shows that Slide and Conventional Spin Tube Methods are the cheapest in terms of cost but the Gel Card Method is better because of its simplicity, stability of results, absence of wash phase with comparable accuracy and efficiency. We recommend its usage for routine blood group serology in transfusion centers of all hospitals despite its expensiveness.

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Cellular Pleomorphic Adenoma with Cytomorphological Diversity: A Diagnostic Dilemma

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ABSTRACT

Pleomorphic adenoma, the most common salivary gland tumor, accounts for 54 to 65% of all salivary gland neoplasm and 80% of the benign salivary gland tumors. Most frequently it affects the parotid gland, followed by the submandibular and the minor salivary glands. Microscopically, mucous, sebaceous, oncocytic and squamous metaplasia sometimes with the formation of keratin cyst, may be present. Extensive squamous metaplasia can be mistaken for malignancy, including mucoepidermoid carcinoma and squamous cell carcinoma. Here, we present an unusual case of pleomorphic adenoma with presence of extensive squamous metaplasia, keratin cyst formations and dense cluster of basaloid cells with spherical hyaline globules giving rise to suspicion of mucoepidermoid and adenoid cystic carcinoma.

Keywords: *Pleomorphic adenoma, salivary gland neoplasms, squamous metaplasia, keratin filled cyst.*

INTRODUCTION

Pleomorphic adenoma (PA) comprises the majority of both major and minor salivary gland tumors.[1] Intraorally the palatal glands are most commonly affected at a frequency ranging from 43%-70%.[1] The cheeks, lips and gingiva are rare sites of occurrence.[1] Pleomorphic adenomas are easily identified on cytology, because of their characteristic biphasic pattern comprising of epithelial/myoepithelial cells and fibromyxochondroid stroma.[2] Fine needle aspiration cytology (FNAC) is a highly accurate tool for the diagnosis of pleomorphic adenoma, with a reported reliability of 80-95%.[3,4] However, even this common salivary gland neoplasm can be diagnostically challenging and cause pitfalls in cytodiagnosis.[4,5] The presence of squamous metaplasia, especially in the absence of chondromyxoid stroma, may be misinterpreted as mucoepidermoid carcinoma.[4,5]

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CASE REPORT

A 42 year-old-female presented to surgery outpatient department with chief complain of small, firm, nodular swelling on cheek since last 10 years with recent complaint of pain near the zygomatico-maxillary area with restricted mobility in one direction. A provisional clinical diagnosis of neurofibroma was made and the case was subjected for FNAC.

Cytological findings

Fine needle aspiration (FNA) was done using a 23 gauze needle attached to a 10 cc disposable plastic syringe. Wet smears were fixed in 95% alcohol and stained with Papanicolaou stain and air dried smears were stained with May-Grunwald-Giemsa stain. The smears were examined for cytomorphological study. Smears were cellular showing predominantly epithelial components in sheets and were dispersed singly (Figure 1). Myoepithelial cells showed varied morphology having plasmacytoid, spindled, stellate and clear cells appearances. Squamous metaplastic cells (Figure 2) with keratin filled cyst and dense cluster of basaloid cells with spherical hyaline globules (Figure 3) were present in fair number. Scant myxoid area was observed after

thorough study of the smears. The diagnosis of cellular pleomorphic adenoma with an area of adenoid cystic and mucoepidermoid carcinoma like changes was made.

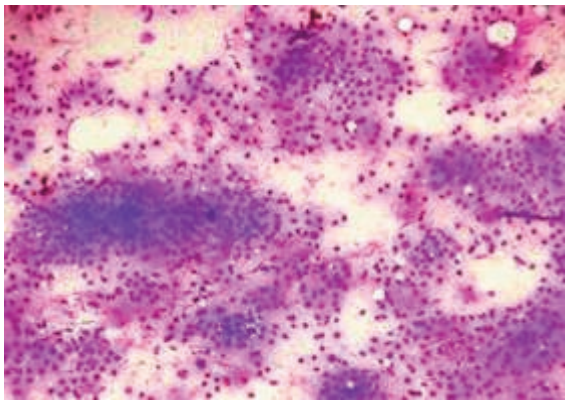

Figure 1: Epithelial components in sheets and dispersed singly

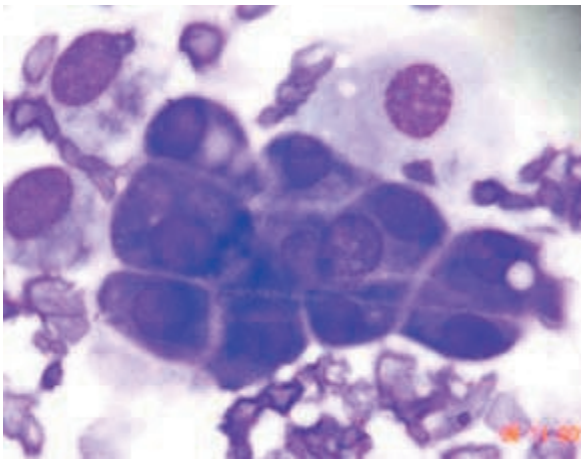

Figure 2: Cluser of squamous metaplastic cells

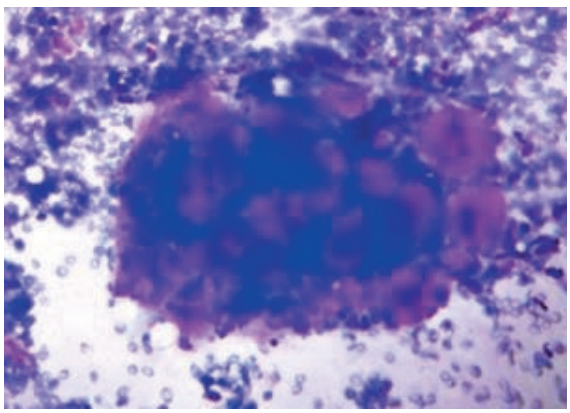

Figure 3: Cluster of basaloid cells with spherical hyaline globules

DISCUSSION

Pleomorphic adenoma is the most common benign salivary gland tumor.[1] It has two components, epithelial and mesnchymal.[1,2] In our case, epithelial components were in sheets and scattered singly; myoepithelial component appeared as plasmacytoid, stellate, spindle and clear cell and scant myxoid area was observed after thorough study of smears. Although fine-needle aspiration biopsy (FNAB) is a highly accurate tool for the diagnosis of pleomorphic adenomas, even this common salivary gland neoplasm can be diagnostically challenging and cause pitfalls in cytodiagnosis.[4,5] The presence of either cystic degeneration or squamous and mucinous metaplasia can lead to a false positive diagnosis of malignancy.[5]

Focal squamous metaplasia is found in about 25% of pleomorphic adenomas and rarely, florid squamous metaplasia is also reported.[6] Adenexal differentiation in the form of extensive keratin filled cysts, reminiscent of trichoepitheliomatous differentiation is also published in the literature.[5] Potential for misdiagnosis of pleomorphic adenoma as mucoepidermoid carcinoma on cytology include presence of squamous and basaloid cells mimicking squamous and intermediate cells of mucoepidermoid carcinoma.[5,6] Presence of sebaceous/ mucinous metaplastic cells, vacuolated histiocytic cells, oncocytes, rare myoepithelial cells and mucoid material; and absence of metachromatic fibrillar stromal material that characterizes most pleomorphic adenomas on aspiration cytology are also documented.[1,5,7] . Other morphological features like cylindromatous pattern, giant cells and crystalline deposits were also observed in other study.[8] In the present case, squamous metaplastic cells, dense cluster of basaloid cells with spherical hyaline globules were present in fair number and gave rise suspicion of mucoepidermoid and adenoidcystic carcinoma but scant myxoid area was observed after thorough study of smears and finally diagnosis of cellular pleomorphic adenoma with an area of adenoid cystic and mucoepidermoid carcinoma like changes was made.

To avoid misinterpretation of pleomorphic adenoma with squamous metaplasia as mucoepidermoid carcinoma on cytology, a close scrutiny for fragments of chondromyxoid stroma, a characteristic feature for pleomorphic adenoma, is important.[4,] Eextracellular type of keratinization is rare in mucoepidermoid carcinoma.[5] However, even if the features diagnostic of pleomorphic adenoma are identified, the differential diagnosis may still include a mucoepidermoid carcinoma arising in a preexisting pleomorphic adenoma inspite of its rarity.[5] Therefore, the cytopathologist needs to be aware of the cytologic variations in pleomorphic adenoma so as to

avoid diagnostic errors.[8]

CONCLUSION

To increase the diagnostic accuracy in the benign salivary gland lesions and to avoid overdiagnosis of benign lesion as malignant tumour; awareness and recognition of both characteristic and less typical cytomorphological features are needed.

Ethical Clearance- Taken

Source of Funding- Self

Conflict of Interest- None

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Right to Health: The Right to the Highest Attainable Standard of Health

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ABSTRACT

The Article 25 of the Universal Declaration of Human Rights (1948) by the United Nations grants the right to a standard of living adequate for the health and well-being to humans including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond human control. World Health Organization had also advocated Primary Health Care strategy in 1978 for achieving the Health-for-All by year 2000.

Keywords: *Right to health, Child health, Mother health, Disabilities, HIV.*

INTRODUCTION

Humans have been struggling for better quality of life for hundreds and thousands of years. The journey from the jungle -where 'survival of the fittest' was the rule- to modern human societies has progressed to a stage where 'survival of the weakest' is the main human value today. The absolute dominance of few individuals, who treated people as 'subjects' without any rights, could not continue for long. Last few centuries have witnessed several social revolutions such as French, American, and Russian revolution which changed the social, economic and political structure of the societies around the world, and the rights of every human have been recognized [1].

In 1946, detail plans for health development had been presented in the 'Report of the Health Survey and Development Committee' to the Government of India under the chairmanship of Sir Joseph Bhore [2].

The Article 25 of the Universal Declaration of Human Rights (1948) by the United Nations grants the right to a standard of living adequate for the health and well-being to humans including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond human control. Elderly, motherhood and childhood are entitled to special care and assistance. All children, whether born in or out of wedlock, enjoy the same social protection [3].

And in 1950 Indian constitution proclaimed it as a 'sovereign socialist secular democratic republic', which guarantees "the right to life and liberty" (Article 21) and includes among the duties of the State "to raise the level of nutrition and the standard of living and to improve public health" (Article 47) [4].

International Covenant on Economic, Social and Cultural Rights (1966) further state in Article 12 that the States recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.[5] Consequently Government of India also formulated its first National Health Policy in 1983. [6] United Nations had also presented comprehensive millennium development goals for better health [7].

Thomas McKeon (1912–1988), highlighted the role of social policies in health development in his book 'Introduction to Social Medicine' [8]. Hugh R Leavell and Edwin G Clark (1965) elaborated that prevention does not only mean prevention of disease and promotion of health but it also includes the prevention of disability and death by early diagnosis and treatment, thus laying the foundations of preventive medicine [9]. Prof. Samuel H Preston (1975) concluded that no doubt the rise in incomes have led to rise in life expectancies

but technological changes in medicine have played an important role [10].

The right to the highest attainable standard of health remains unfulfilled for most of India's population, as the health care system has collapsed in several parts of the country [11].

PUBLIC HEALTH SECTOR

Public health services have been neglected for a long time in India, and the resultant vacuum has been increasingly filled by the 'quacks' in the villages and corporate medical care hospitals in the urban areas. National Health Policy (2002) expressed the intention of the government to correct these deviations and some efforts have been made by government of India to reverse this trend [12].

The role of public health was re-emphasized by the Expert Committee on Public Health Systems (1996) formed by the Ministry of Health and Family Welfare, Government of India [13]. Voluntary Health Association of India's (VHAI) Independent Commission on Health (1997) also stressed the need to open new schools of public health [14]. Calcutta Declaration on Public Health (1999) emphasized the leadership role for public health and identified the need for creating career structures at the national, state, provincial and district levels [15].

According to the Office of Registrar General of India, NCDs are the cause of death in 42%, communicable diseases, maternal, perinatal and nutritional conditions in 38%, and 10% deaths are due to injuries and ill-defined causes [16]. With technological advancements, the cost of healthcare is rising but investments in health are not rising. India invests only 1.1% of its gross domestic product (GDP) on health which is much lower than even other developing countries [17].

As a result most people have to pay heavy fee for medical care from out-of-pocket not only when they avail medical services from private sector but also for services available in the public sector medical institutions. According to National Sample Survey Organization 71st survey round the average cost of hospitalization per case were Rs. 16,956 and Rs. 26,455 respectively in rural and urban area [18]. People have to pay out-of-pocket in public institutions as in these institutions the shortage of drugs and diagnostics is endemic and human resources are also in short supply, more so in rural areas [19].

According to a 2011 Supreme Court order, private hospitals are supposed to provide free treatment and hospitalization to the poor [20]. It was observed that higher public spending encourages equity in utilization of services. The public system which is perceived to be of 'poor quality' is largely utilized by poor people; it is still serving large number of people. Public subsidies in public health institutions go to poorer section of society [21]. A study in Punjab observed recently that though public facilities are not very well staffed but the staff client ratio is quite good [22].

CHILD MORTALITY

As per Census 2011, the mortality rate of children under five in 2009 was 64 per 1,000 live births [23]. India's share of child deaths in the world is more than 20%, with approximately 1.83 million children dying before their fifth birthday [24].

A total of 585 children died due to encephalitis in eastern Uttar Pradesh in 2011, according to official data as of November 2011 [25]. Causes of death include waterborne diseases such as diarrhoea, respiratory diseases, malaria and parasitic infections, which account for nearly half of deaths in children under five years of age [26].

Reproductive Rights and Maternal Mortality

Reproductive rights, as recognized throughout various international legal sources, are not yet explicitly guaranteed in India. While some domestic legislative protections have been put in place, reproductive rights are legally encompassed within the Fundamental Right to Life guaranteed by the Constitution, and in right to health legislation. In High Courts throughout the country, various reproductive rights have been upheld. The High Court of Delhi first recognized the right to survive pregnancy and childbirth as a fundamental right [27].

Indicators of progress in reproductive health include a low or lowered Maternal Mortality Ratio (MMR), decreased numbers of child marriage, low adolescent birth rates, access to contraception, general access to reproductive health education, better nutrition, hygienic living conditions and lower levels of poverty overall. Other causes of maternal mortality include: poor health infrastructure, lack of specialists, inadequate

budget, and persistent discrimination, including against economically weaker sections, minorities, persons with disabilities, Scheduled Castes and Scheduled Tribes [28]. As per 2011 Census, the MMR for the total population accounted for 212 per 100,000 live births. However, statistics vary widely from state to state [29].

National Rural Health Mission/ National Health Mission

In the last decade, under the National Health Mission (NHM), larger investments have been made with some flexibility [30]. The National Rural Health Mission(NHRM) was launched to improve availability and access to quality health care for the rural poor [31]. A variety of national programmes have been implemented in an effort to reduce maternal mortality and improve overall maternal health. The National Maternity Benefit Scheme provided payments of INR 500 (approximately USD 9.5), per pregnancy, for pre-natal and antenatal care, to women belonging to poor households [32]. Under the National Rural Health Mission, the Janani Suraksha Yojana (JSY) scheme aimed at increasing institutional deliveries among poor families through an integrated cash-assistance and pre-natal and antenatal care system [33]. However, women who have not been registered by an ASHA (Accredited Social Health Activist) or other link worker have been denied the benefits of the programme [34].

The High Court ordered the state to build homeless shelters where pregnant women would have access to food, drinking water, and medical attention [35]. In another significant judgment in *Suchita Srivastava v. Chandigarh Administration,* where a mentally disabled woman "refused to give her consent for the termination of pregnancy, the Supreme Court held that a women's right to personal liberty includes the right to make reproductive choices and that the state must respect her choice" [36].

DISABILITIES

Most persons with disabilities are denied heath insurance, and many of them have been denied medical treatment in hospitals citing reasons such as inaccessibility, lack of adequate human resources or suitable equipment, and inability to communicate.

Only 15% of the population has health insurance, making quality healthcare in private hospitals inaccessible for a vast majority of the population.

The government has announced that the health insurance scheme (Rashtriya Swasthya Bima Yojana) will be expanded by the end of the Twelfth Five- Year Plan in order to cover around 70 million families [37].

India spends only 4.4% of its budget on health, which is far below the global median of 11.5%.69 As a consequence; India's health-care infrastructure is sub-standard and inadequate, lacking doctors and hospital beds. There are six doctors and nine hospital beds per 10,000 people [38].

The growing neglect of primary health centres and the inability to establish 'compulsory licensing', particularly for essential and life saving drugs, is disturbing. In compulsory licensing, under the World Trade Organization's (WTO) Trade Related Intellectual Property Rights Agreement (TRIPS), the government allows a generic firm to produce a patented product without the consent of the patent owner78 on the following grounds: (a) that the reasonable requirements of the public with respect to the patented invention have not been satisfied; (b) that the patented invention is not available to the public at a reasonably affordable price; or (c) that the patented invention is not worked in the territory of India [39].

The TRIPS Agreement states that compulsory licenses are a legally recognized means to overcome barriers in accessing affordable medicines. In March 2012, the Indian Patent Office has issued the first-ever compulsory license in India to a generic drug manufacturer [40].

HIV/ AIDS

Public funding for HIV/AIDS treatment and prevention is inadequate. While it is an ambitious central government programme, the benefits are not reaching the poorest of the poor. The Government of India's national report claims that "the number of newly detected HIV positive cases has dropped by over 50% in the last decade [41].

Some government policies have also deviated from the right to health approach, threatening to exacerbate discrimination of people living with HIV/AIDS.

Despite commitment at the domestic and international levels, the government has still not passed

the HIV/AIDS Bill. The Bill provides for informed consent and confidentiality of HIV status; free of cost access to comprehensive HIV related treatment including antiretroviral drugs, diagnostics and nutritional supplements [42].

CONCLUSION

This review study shows critical human rights issues especially right to health. Almost right to health in India remains challenging; yet the scope for improvement is immense. If the required positive changes are to take place, however, a radical change in national and regional actions by governments at all levels is necessary (through laws, economic, security and social policies, administrative actions and budgetary allocations) and their implementation.

New governance structures such as autonomous heath centre/hospital boards with the active involvement of local self-government systems needs to be created. Government of India should provide universal coverage of essential health package through tax-based funding; increase budgetary outlays for health progressively; correctly set priorities of health interventions; strengthen public health infrastructure; improve governance of health services- human resource, procurement and distribution; strengthen medical education with quality to generate adequate workforce; ensure regulation of private providers through legislation and enforcement; and strengthen independent monitoring system to build accountability using information technology.

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Conflicts: None

Ethical Clearance: Not required

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Nippostrongylus Brasiliensis, an Experimental Model: A Review

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ABSTRACT

Nippostrongylus brasiliensis is a natural parasite of rat, closely related to human hookworm. Experimental host in which the parasite will attain sexual maturity include mouse, hamster, rabbit, chinchilla and to lesser extend in a cotton rat. The parasite does not occur naturally in laboratory rodents and its primary importance is as a model of immunology, host parasite interaction and anthelmintic testing.

Keywords: *Anthelmintic, Nippostrongylus brasiliensis, Parasite, Rat.*

INTRODUCTION

It is one of the most widely studied helminth parasite due to the relatively simple life cycle for parasite production.

Synonyms: *Nippostrongylus muris, Heligmosomum muris*.

Morphology

Adult worms are slender. The female is 2.5 mm to 6.2mm long and the male is 2.1mm to 4.5mm in length. The egg is ellipsoidal and thin shelled (**Figure 1**).

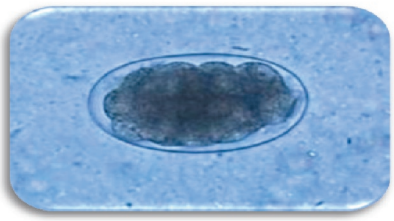

Fig.1: Morphology of egg of Nippostrongylus brasiliensis

The head is small and bears a cephalic expansion of cuticle. The cuticle has transverse striations and ten prominent longitudinal ridges. The mouth and buccal cavity are both small. The armed buccal cavity enables the nematode to take a firm hold on mucosa from which it draws blood. Recently few worms thus appear blood red in colour. The excretory system is well developed and hides the anterior region of gonads. it consists of two elongate sacs, which open externally by an excretory pore just in front of the base of the pharynx. The nerve ring lies just posterior to the excretory pore. The intestinal cells contain a melanin like pigment.[1]

Male:

The characteristic external feature is the bursa, which forms an umbrella like expansion surrounding the cloaca (**Figure 2**). It consists of two large lateral lobes and a small dorsal lobe. The lateral lobes, which are supported by fleshy rays comparable to the ribs of an umbrella, are asymmetrical, the right being larger than left. The left rows are more divergent than right.

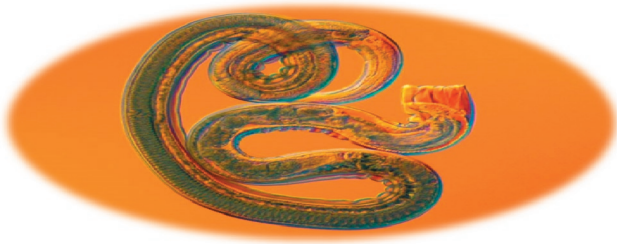

Fig.2: Adult male helminth, Nippostrongylus brasiliensis

The testis occupies much of the anterior half of the body, its beginning is difficult to see, being hidden by

the large excretory sac. It passes into the usual male organs, vas deference, seminal vesicle and ejaculatory duct. The distal end of later contains two yellow brown spicules. The distal end of the intestine joins the post end of ejaculatory duct.[2]

Female:

Female are larger than male. The vulva is posterior and opens in ventral surface just in front of the anus (**Figure 3**).

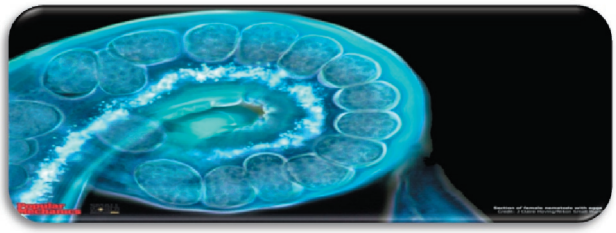

Fig.2: Adult female helminth, Nippostrongylus brasiliensis

The main part of ovary is dorsal and filled with single row of developing oocyte gradually increasing in maturity as they approach the receptaculumseminis. The uterus which occupies much of the posterior part of body is connected posteriorly with a muscular ovijector leading into the vagina.[3]

LIFE CYCLE

Life cycle is direct. Eggs passed in the faeces hatch within 24 hours and develop into infective larva in another 3 to 4 days. Infection is normally by larval penetration of skin. The life cycle involves an external non parasitic phage in an aerobic, humid environment at air temp followed by a parasitic phage in an anaerobic, warm blooded environment provided by intestine. Normal development of the eggs and larva in the soil requires abundant oxygen and moisture. This condition may be provided in laboratory experiments by mixing eggs with charcoal or alumina and spreading on moist filter paper. Hatching of rhabditiform larva takes place at room temperatures (8-22^{o}C) in about 8-24 h. The 1st rhabditiform larva grows and moults to the 2nd rhabditiform larva within about 48 h. This in turn grows moults within 4-5 days and gives rise to the 3rd stage filariform larva. The cycle from egg to infective filariform larva normally requires about 4-5 days, but the time naturally varies. The filariform larva shows tropisms which are characteristics of all strongyle larva. They are markedly thermotactic and are rapidly stimulated into activity by the warmth of a nearby animal. They also remarkable negative geotropism.[4]

This is clearly shown in lab faecal cultures. In such cultures larva migrate to the edge of the moist filter paper where reaching the highest points they extend themselves into the air and wave back. In the natural state, they likewise climb to the top of soil particles await a suitable host. Both these tropisms would tend to increase the chance of infection.[5]

PATHOGENESIS

Infection of rat host is accomplished by placing larva directly on skin allowing them to penetrate, or by hypodermic injection or via the mouth. About 5000 larva on the skin give a heavy infection. Hypodermically a much smaller dose is effective. After entry into the blood stream, larva is carried via the heart to the lungs within about 24 hrs. Here the larva feed on whole blood and undergo rapid growth and differentiation culminating in the 3rd moult to the 4th stage larva. The later are carried by ciliary action up the bronchi and trachea, finally passing down the pharynx to the intestine. The first larva reach the intestine in about 42 h and about 50% arrive there between 45 and 50 h. Here 4th and final moult takes place resulting in fifth stage male and female worms. Maturation is rapid and by the 6th day following infection, eggs appear in the faeces. Within the host gut, worms feed mainly on blood and tissue cells, but intestinal contents must also form part of the diet, since intestinal flagellates have been found within the gut lumen of the worm.[6]

Pathologic effect and clinical symptoms

Light infections cause inflammation in the skin, lungs and intestine which subsides after a few days. Small intestinal epithelial cells are flattened and villi are shortened and fused. Severe infections cause verminous pneumonia. Clinical signs are not evident in light infections. Heavy infections result in hunched posture, rough hair coat, lethargy, respiratory distress and death. Deterioration of lung function occurs. Destruction of alveolar septa resulting airflow limitation. Long term airways hyper-responsiveness. Chronic obstructive pulmonary disease (COPD) Emphysema. Increased production of inflammatory cells.[7]

Immune response produced

A strong Th2 cell mediated immune response

develop characterised by presence of CD4+ , Th2 cells, eosinophills, cytokines such as IL-13, IFN-gamma. Mucous cell hyperplasia and IgE production by B-cell, allergic airway inflammation. Presence of haemosiderin laden macrophage in lung causing phagocytosis of erythrocytes.[6]

Reasons for using the helminth as model[7]

It is an experimental model in all over the world in helminthology for studying the host-parasite relationship.

- Definitive host: rat and mice
- It is non zoonotic
- Life cycle completed in 4-5 days.
- Migratory type of life cycle.

It is the powerful tool for the investigation of basic biology of immune responses and protective immunity. e.g

1. Induction and maintenance of Th2 type immune responses.
2. T cell dependant IgE production.
3. Eosinophilia, mastocytosis.
4. Goblet cell hyperplasia, mucous secretion.
5. Simple, cost effective techniques used.
6. Easy to work with this parasite in modern lab.

Diagnosis, treatment and prevention

Diagnosis depends on identification of the eggs in faeces or adult worm in intestine. Animals infected with *N. brasiliensis* should be culled. If that is not possible, ivermectin, benzimidazoles and other anthelmintics useful for eradicating trichostrongylid nematodes should also be effective in eliminating *N. brasiliensis*. Tetramisole loaded into zeolite is more effective at killing adult *N. brasiliensis* in rat than tetramisole alone.[8]

Prevention is through sanitation and exclusion of wild rodents.

Ethical Clearance: Taken from Arawali Veterinary College committee.

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The Effects of Ramadan Fasting on Body Mass Index and Systolic & Dystolic Blood Pressure

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ABSTRACT

Background: All over the world Muslims, during Islamic month of Ramadan observe fast. In the month of Ramadan, healthy adults refrain from eating, drinking, smoking and sexual intercourse during daylight hours.

Aims and objective: The objective of this study was to explore the effects of Ramadan fasting on body weight (BMI) and blood pressure in healthy adult Muslim respondents who fast during Ramadan.

Materials and method: This is a prospective study in which 200 fasting Muslim healthy subjects both males and females in the age group <20->40 were included. Detailed history and anthropometric measurements was carried out in all the subjects, before Ramadan and thereafter, after Ramadan month.

Result: Fasting caused not significant reduction in weight (BMI) in males as well as females. Neither systolic nor diastolic blood pressure changed significantly during Ramadan fasting.

Conclusion: Ramadan fasting is beneficial in a way. It is healthy non pharmacological means for improving cardiovascular risk factors. However, since many metabolic, biochemical, physiological, spiritual and psychological changes take place in body, we recommend large scale coordinated studies to throw more light on this topic.

Keywords: *Ramadan fasting, body weight, Body mass index, blood pressure.*

INTRODUCTION

Ramadan fasting is an Islamic religious fast strictly observed every year throughout the world during the month of Islamic calendar for about 30 days. In Islam, fasting for a month is an obligatory practice during the holy month of Ramadan, from dawn, until the dusk. They are advised to be away from foods or water for the whole day, to stay away from sex, misconduct and also from consuming medicines, nutritional fluids and addictions etc.[1] Ramadan fasting is obligatory for the healthy adult but, when fasting might significantly affect the health of the fasting individual or when one is genuinely sick, Islam exempts him or her from fasting. [2]. Ramadan fasting can be good for one's health and personal development. Muslims do not fast because of medical benefits which are of a secondary nature, but the health benefits of fasting are important issues. They are allowed to restrain from fasting for one day to onwards depending on the conditions of their illness. [3]

Literally, fasting means to deprive oneself of food for a specific period, usually for therapeutic or religious purposes. Medical journals have presented articles that, therapeutically, support fasting as a means of ridding hazardous materials from the body. Michalsen et al (2005) even suggested incorporating fasting as a therapy in integrated treatment. [4] This effect can open the road to health through fasting which can be considered as a

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medical tool apart from being a spiritual need.

AIMS AND OBJECTIVES

The objective of this study was to explore the effects of Ramadan fasting on body weight, (BMI) and blood pressure in healthy adult Muslim respondents.

MATERIAL AND METHOD

A cross- sectional study was conducted among healthy adult Muslim respondents , between the period of June 2016 to July 2016. In this study, 200 respondents from area of Muslim locality Bunkar nagar and Ahmad nagar Meerut were randomly selected for the interview. Those with known history of dyslipidemia, hypertension, diabetes were excluded. The purpose of the study was explained to them. The study included self-administered questionnaire, which included questions about their life style during the Ramadan.

For the health status, body mass index was calculated. Weight and height were measured and collected by the participants. Body mass index (BMI) was calculated as weight in kilograms divided by the square of height in meters. Body weight was recorded with the help of an adult portable weighing machine. These BMI values were then categorized into four categories, that is, 'under weight with BMI less than 18.5', 'normal weight with BMI between 18.5 to 24.9', 'overweight with BMI from 25 to 29.9', and 'obese with BMI more than 30'. (Gupta *et al*., 1995) Height was measured with stadiometer attached to horizontal platform. The blood pressure was recorded with the help of Sphygmomanometer and by using a standard cuff of 12.5 cm wide and sufficiently long to surround at least 2/3rd of upper arm in sitting position.

Data was collected using computer software Microsoft Excel. Further statistical differences among the variables were evaluated using SPSS version-21. p -value of <0.05 was considered as statistically significant.

RESULTS

Table 2 : Socio demographic profile

VARIABLES		FREQUENCY	PERCENT	Mean ± SD
Age	< 25 years	29	14.5	22.3 ±3.7
	25-40 years	118	59.0	35 ±05.9
	> 40 years	53	26.5	45 ±7.8
Gender	Male	141	70.5	
	Female	59	29.5	
BP SYS PRE	=<120	178	89.0	110 ±11.7
	>120	22	11.0	127 ±9.3
BP SYS POST	<120	177	88.5	71 ±5.3
	>120	23	11.5	85 ±3.7
BP DIA PRE	=<80	200	100.0	71 ±5.3
	>80			71 ±5.3
BP DIA POST	=<80	200	100.0	85 ±3.7
	>80			85 ±3.7
BMI PRE	Under Weight	3	1.5	18 ±1.3
	Normal	146	73.0	26 ±3.7
	Overweight	51	25.5	22 ±3.7
BMI POST	Under Weight	3	1.5	18.1+1.5
	Normal	145	72.5	26.1 ±3.8
	Overweight	52	26.0	22.2 ±3.9
	Total	200	100.0	

During the month of Ramadan in 2016, total number of fasting days was 30. A total of 200 respondents were studied who observed fast. Out of them, 141(70.5%) of the participants were males and 59 (29.5%) were females. Majority of the respondents 118 (59.0%) belonged to the age group of 20 -40 years.

Pre Ramadan, BMI of respondents was found to be 03 (1.5 %) under weight, 146 (73.0%) normal weight, and 51 (25.5 %) over weight. Post Ramadan, BMI of respondents was calculated, it was found to be 03 (1.5 %) under weight, 145 (72.5%) normal weight and 52 (26.0 %) over weight. BMI showed a minimal decrease after Ramadan which was not statistically significant.

Pre Ramadan, systolic blood pressure =<120 was to be found among 178 (89.0%) of respondents and diastolic blood pressure =<80 was to be found among 200 (100.0%) of respondents. Post Ramadan, systolic blood pressure =<120 was to be found among 177 (88.5%) of respondents and diastolic blood pressure =<80 was to be found among 200 (100.0%) of respondents. Systolic blood pressure and diastolic blood pressure did not change any statistically significant difference in values recorded before and at the end of Ramadan months.

DISCUSSION

Islamic Ramadan fasting is a physiological, psychological as well as a spiritual experience. The purpose of fasting for Muslims is to learn self-restraint from indulgence in everyday pleasures, for self discipline, to develop God-consciousness, to develop self-control, to purify the body, and to empathize with the poor and hungry. Fasting is a powerful therapeutic process that can help people recover from mild to severe health conditions.[7] Accordingly, the health effects of religious fasting have recently been the subject of scientific inquiry, with most of the research being performed in the last two decades. [8] Total fasting reduces or eliminates excess hunger and rapid weight loss. The decrease in body weight may be due to increase in fatty acid oxidation to provide energy, when all glycogen level is depleted to provide glucose for energy production. [9]

The reduced meal frequency over a month long time has a effect on nutrients metabolism and hence alters the body weight, BMI, pulse rate, blood pressure, as well as lipid profile and blood sugar and altered, resulting in altered hormonal levels and hormonal regulation of metabolism. [10] It is possible that the weight loss is due to the efficient utilization of body fat during fasting. Unalacak et al. (2011) study showed that fasting during Ramadan results in a significant weight loss in obese patients in comparison to non-obese individuals. [11]

In our study, BMI showed a minimal decrease after Ramadan which was statistically not significant. A study done by Maislos et al. (1993) suggested that no significant difference was noticed in body weight as well, during the Ramadan. [12]

Frost G, et al.(1987) found that non-significant changes in body weight during Ramadan. [13] A study from Saudi Arabia did not find any significant change in body weight during Ramadan.[14] A study conducted by El Ati et al, (1995) on Muslim women found that their body weight and fat mass did not change significantly. Also, they found the daily food intake pre-and post-Ramadan did not change . [15] Fedail SS, et al. (1982) reported no changes in BMI or body fat during Ramadan.

The decrease in the body weight can be due to reduction in beverage intake and it can also be endorsed to a decrease in glycogen-bound water stores, extracellular volume reduction secondary to a lower sodium intake and a moderate degree of hypohydration with a slight loss of body tissue. The loss in body weight is relatively small and may be explained on the basis of depletion of glycogen store and subsequent glycogen bound water store, reduced sodium intake and resulting extracellular volume contraction, reduced intake of fluid and mild hypo hydration and also some loss of body tissues. Generally during Ramadan fasting meals frequency is reduced to two meals per day and is often accompanied with reduced energy intake and resultant loss of body fat and weight as reported by Hallack & Nomani. [17]

Athar et al. (1996) reported that overweight persons lose more weight than normal or underweight subjects. [18] Also, Fakhrzadeh et al. (2003) found that fasting caused a significant reduction in weight and BMI in men and in waist circumference in women. [19] According to Ziaee et al (2006) [20] , Al- Hourani (2007) [21] and Atourn (2007) [22] Ramadan fasting was associated with significant weight loss. With decreased weight during Ramadan, BMI has also decreased.

BLOOD PRESSURE

Results of our study demonstrate that systolic blood pressure and diastolic blood pressure did not show any statistically significant difference in values recorded before and at the end of Ramadan months. This may be due to the fact that people who fast are allowed to eat and drink before dawn and after dusk. This maintained homeostasis and blood pressure did not change. Similarly, A study conducted by Gupta M, et al.(2013) revealed that systolic blood pressure and diastolic blood pressure did not show any statistically significant difference in values recorded before and at the end of Ramadan months. [23]

A study done by Kamal Mansi et al. (2007) found significant decrease in the systolic & diastolic BP after Ramadan than pre Ramadan values. [24] A study conducted by Samad F, et al. (2015) revealed that there was a significant effect of Ramadan on diastolic BP ($p<0.005$), the drop being 3.19 mmHg. [25] An another study conducted by Shaheena Kamal et al (2012) showed significant decrease in the systolic & diastolic blood pressure after 4 weeks of Ramadan. [26]

CONCLUSION

This study found no significant changes in weight (BMI) and neither systolic nor diastolic blood pressure changed significantly in males as well as females respondents during the Ramadan fasting. However, since many metabolic, biochemical, physiological, spiritual and psychological changes take place in body during the Ramadan. We recommend large scale coordinated studies to throw more light on this topic. More research needs to be conducted to investigate further the fast of Ramadan.

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