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PREVALENCE OF ADHESIVE CAPSULITIS OF SHOULDER IN MANIPUR POPULATION: A HOSPITAL BASED STUDY

Medical Science

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ABSTRACT

BACKGROUND: Shoulder pain is a common presenting concern in an outpatient department which can cause significant disability to work. Primary adhesive capsulitis is reported to affect 2-5.3 % while secondary adhesive capsulitis affects 4.3-38 % of the general population.
AIM AND OBJECTS: To study the prevalence of adhesive capsulitis of shoulder in patients with shoulder pain in Manipur population.
MATERIALS AND METHODS: A cross-sectional study conducted on 734 patients with intrinsic shoulder complaints attending Outpatient Department of Physical Medicine And Rehabilitation, Regional Institute Of Medical Sciences, Imphal from November 2016 to October 2017.
RESULTS: The mean age of study population was 50.88 ±14.50 years out of which adhesive capsulitis was diagnosed in 45.8 % with female predominance of 52.4% and peak group affection of 50-59 year.
CONCLUSION: There is a high prevalence of adhesive capsulitis in Manipur population which may require some attention regarding better and effective preventive and management methods.

KEYWORDS

Prevalence, Intrinsic Shoulder Pain, Adhesive Capsulitis, Manipur.

INTRODUCTION

Adhesive capsulitis of shoulder is a common condition characterized by spontaneous onset of pain, progressive loss of both active and passive range of motion in all planes of glenohumeral joint especially external rotation.[1] It was termed as periarthritis in 1896 by Duplay .[2] The term "frozen shoulder" was used by Codman in 1930. He wrote that the condition was "difficult to define, difficult to treat, and difficult to explain".[3] Neviaser in 1945 described adhesive capsulitis as a contracted, thickened joint capsule that seemed to be drawn tightly around the humeral head with a relative absence of synovial fluid and chronic inflammatory changes within the subsynovial layer of the capsule .[4] It can have a variable duration but usually lasting between 1-3 years without intervention thereby negatively affecting patient's activities of daily living (ADL) and reduces the quality of life.[5]

The incidence of adhesive capsulitis in the general population is approximately 2% but several conditions are associated with an increased incidence like diabetes mellitus (five times more), cervical disc disease, prolonged immobilization, hyperthyroidism, stroke or myocardial infarction, autoimmune diseases, trauma, protease inhibitors of antiretroviral therapy. Individuals between the ages of 40 and 70 are more commonly affected. Approximately 70% of patients are women and 20 to 30% of affected individuals develop adhesive capsulitis in the opposite shoulder.[6]

Pathology of adhesive capsulitis is due to perivascular and synovial inflammation, due to cytokines and metalloproteinase but the predominant abnormality is fibroblastic proliferation with increased collagen and nodular band formation with loss of resilience of joint.[7] The classic frozen shoulder has three stages as described by most of the literature. The freezing or painful stage, frozen stage and thawing stage .[8,9]

Diagnosis of adhesive capsulitis is based primarily on history and physical examination.

Plain radiograph can be done when the history is atypical, when there is previous trauma or to rule out other intrinsic causes like calcific tendonitis, impingement, osteoarthritis of glenohumeral and acromioclavicular joints, neoplastic causes etc.

Treatment includes nonsteroidal anti-inflammatory drugs, oral steroids, intra-articular steroids, physical therapy, mobilization and in case of loss of range of motion stretching programs, pendulum motions, active-assisted and passive mobilizations are used to restore joint mobility. With failure of conservative treatment hydraulic distention, manipulation under general anesthesia, arthroscopic release and finally open release can be tried.[2]

The aim was to study the prevalence of adhesive capsulitis of shoulder in patients with shoulder pain reporting to a tertiary care hospital in Manipur

MATERIALS AND METHODS

This study was a cross sectional study carried out in Department of Physical Medicine and Rehabilitation, Imphal Manipur. All the patients with intrinsic shoulder complaints, originating from within the shoulder joint attending outpatient Department of Physical Medicine and Rehabilitation for one year from November 2016 to October 2017 were included in the study.

The patients who were not able to cooperate with clinical examination, with any recent trauma, fracture, bony malformation or dislocation, previous surgical intervention to shoulder, cervical pathology, inflammatory diseases like rheumatoid arthritis, gouty arthritis or with shoulder pain secondary to neurological, vascular, cerebrovascular accident affecting the same limb were excluded.

Detailed history and clinical examination was done in all the patients. The history included questions like onset of pain, character of pain, pain at night, stiffness, aggravating and relieving factors, associated factors or any history of trauma. The clinical examination included

goniometric measurement of active and passive range of motion of both shoulders and specific clinical tests to rule out other shoulder pathologies. Specific investigations like hemogram, blood sugar, rheumatoid factor, C reactive protein, serum uric acid were done wherever indicated to rule out other causes. Patients with history of trauma, significant signs of inflammation were advised anteroposterior view radiograph of both shoulder.

Adhesive capsulitis was diagnosed if either of the following was present: [10]

1. Atleast 50 % reduction in both active and passive external rotation of shoulder
2. Loss of passive glenohumeral ROM >20 degree in atleast 2 planes

Database was prepared using excel spreadsheet containing age, sex, address and side of affection. Age was recorded in years completed at the time of the examination and categorized into 10 year intervals.

Statistical analysis: Data was presented in a descriptive manner with absolute numbers and percentages.

Analysis was performed by SPSS 23 version.
Approval was taken from Research Ethics Board and informed consent was taken from all the patients.

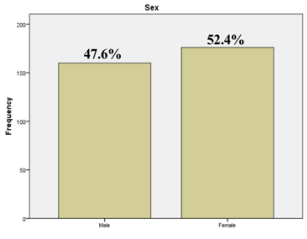
Table 1 : Age of study population

Variable	Frequency (N)	
Age	Total patients	Adhesive capsulitis
10-19 years	18	Nil
20-29 years	53	9
30-39 years	80	20
40-49 years	150	60
50-59 years	204	110
60-69 years	169	100
70-79 years	46	29
80-89 years	13	8
90-99 years	1	Nil
Total	734	336

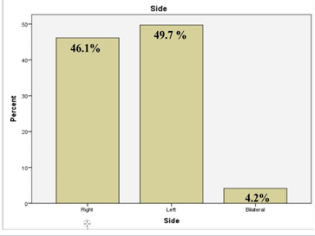
Table 2: Characteristics of study population

		Frequency (Percentage)	
Variables	**Total patients**		**Adhesive capsulitis**
Gender	Male	331(45.1)	160(47.6)
	Female	403(54.9)	176(52.4)
Side of affection	Right	365(49.7)	155(46.1)
	Left	335(45.6)	167(49.7)
	Bilateral	34(4.6)	14(4.2)
Geographical location	Urban	462(62.9)	196(58.3)
	Rural	272(37.1)	140(41.7)
	Total	734 (100.0)	336(100.0)

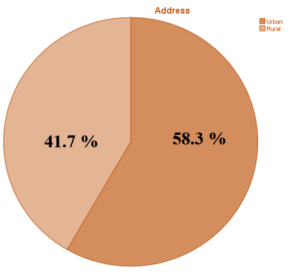
Bar diagram showing distribution of gender in adhesive capsulitis (Figure 1)

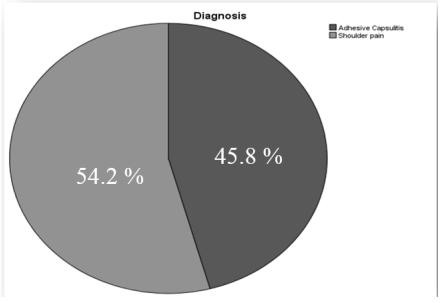


Bar diagram showing side of affection in adhesive capsulitis (Figure 2)



Pie chart showing percentage wise distribution of geographical location for adhesive capsulitis (Figure 3)





Pie chart showing percentage wise prevalence of adhesive capsulitis (Figure 4)

RESULTS

The study evaluated a total of 734 patients with intrinsic shoulder complaints who fulfilled described criteria attending outpatient Department of Physical Medicine and Rehabilitation, RIMS hospital from November 2016 to October 2017.

Mean age for the study population was 50.88±14.50 years with range between 13 to 91 years (Table 1). Total males were 45.1 % and females were 54.9 %(figure 1). Patients belonging to urban area were 62.9% and rural were 37.1 %(figure 3). Adhesive capsulitis accounted for 45.8 % out of total cases (figure 4). The results showed more affection of females with 52.4 % and age group of 50 -59 year with 32.7 % of total diagnosed cases. It was found to involve left side more with 49.7 % while bilateral involvement in 4.2 % cases only(figure 2). The urban population was found to be more affected with adhesive capsulitis with 58.3 %(Table 2).

DISCUSSION

Shoulder pain is a common presenting problem in an outpatient department of a hospital. It significantly affects the patient's activities of daily living and ability to work.

The prevalence of shoulder pain has been reported to be between 7-14 %.[11] Primary adhesive capsulitis is thought to affect 2% to 5.3% of the general population while secondary adhesive capsulitis related to diabetes mellitus and thyroid disease is reported to be between 4.3% and 38%.[12,13]The prevalence of shoulder pain in India has been reported to be 2 % urban and 7.4 % rural population.[14,15]

Few studies have epidemiologically assessed patients with shoulder pain and described the prevalence of common various shoulder disorders including frozen shoulder .[16-18] No such prevalence study for Manipur population is available in literature till date.

The working definition followed by study is based on the hallmarks of frozen shoulder and is according to diagnostic criteria published in most of the literature.[10]The basis is that frozen shoulder affects all range of motion both active and passive but most affected is external rotation.

Many studies have consistently observed significant capsuloligamentous complex fibrosis and contracture of shoulder joint in such cases. The proximal portion of the capsuloligamentous complex and the subscapularis were found to limit external rotation when the glenohumeral joint was positioned up to 45° of abduction. So the loss of passive external rotation is considered as the pathognomic sign of a frozen shoulder.[10,19-20]

In our study, adhesive capsulitis or periarthritis was diagnosed in 45.8 % of all shoulder pain patients. Our results are close to that reported by study done by Walker -bone et al who reported periarthritis in 55 % of the patients.[16] Sudhir S[18] et al conducted a study on prevalence of shoulder disorders in tertiary care centre, they also reported adhesive capsulitis as the most common diagnosis with 43.1 %. It was found to be more prevalent in age groups 50-59 years. It can be explained as aging is associated with degenerative changes of connective tissue and reduced strength of anterior-inferior capsule and capsular ligament, the factors that may precipitate the disease process. The primary adhesive capsulitis is less prevalent in age groups above 60 where association with degenerative glenohumeral arthritis and rotator cuff tears are more common. Juel and Natwig [21]and De palma [22]also reported peak between the age 50 -59 years.The prevalence in females was found to be 52.4 %. The association of adhesive capsulitis and female gender is well established in literature but specific causal factors are unexplored. Similar results are shown by studies by Juel and Natwig[21],Nevasier JS[4],Bridgman JF[12], DePalma[22] etc. The gender difference could be attributed to hormonal changes associated with perimenopause and postmenopause.

The side most commonly found to be affected was left which is non dominant in most of the subjects and bilateral cases were found in only 4.2 %, which are again similar to results reported by studies done by Bridgman JF[12] and Clarke GR [23]. It can be explained as it is easier to protect and not to use the nondominant extremity due to pain while dominant side can do the work which leads to the unchecked progression of the disease, also prolonged disuse of extremity or immobility leads to changes in periarticular connective tissue collagen which again precipitate the process. In our study patients coming from urban area were found to be more affected which could be because of the tertiary care center set up which allows more access to urban population, also it could be because of lifestyle differences between urban and rural population.

Adhesive capsulitis is an important concern because of its frequent occurrence, its limiting effect on work capacity and most important its frequent resistance to treatment leading to prolonged severe disability before resolution occurs. The clinical utility of this study might not be that significant but it is first of its kind in Manipur population. As shown by the results, there is high prevalence of adhesive capsulitis among Manipur population. This study might help in drawing more attention for early identification and prevention of progression of the disease so that the morbidity burden of the problem is reduced. This study may also pave way for efficient utilization of resources for management of the disease.

CONCLUSION

Frozen shoulder is a common clinical disease which can lead to significant disability. This study is the first report on prevalence of adhesive capsulitis shoulder in Manipur population. This study has shown prevalence of adhesive capsulitis with 45.8 % .It was found to affect urban population more with predominance in females and age group 50-59 years. The study reflects high prevalence of disease which may require some attention regarding effective preventive and management methods to reduce the morbidity burden of the disease.

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