

ORIGINAL RESEARCH

Analysis of the Pattern of Synovial Lesions from Synovial Biopsies in a Tertiary Care Hospital Based Histopathological Study

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ABSTRACT

Background: A wide spectrum of pathologies involves the synovial lining of joints and periarticular tissues in human body. The present study was conducted to analyse the pattern of Synovial Lesions from Synovial Biopsies in a Tertiary Care Hospital.

Materials & Methods: 180 synovial biopsies were included in the study. Relevant clinical and radiological details were obtained. All the biopsies were stained. The final diagnosis was made. The clinical and pathological data were collected. Based on histomorphology, lesions were classified under four categories that is inflammatory joint diseases, degenerative joint diseases, tumors, and tumor-like conditions.

Results: In the present study, the common age group affected was above 65 years. Minimum patients were in age group less than 20. Most common symptoms were pain and swelling. Most common histopathological diagnosis in the study was chronic nonspecific synovitis (47.22%), followed by osteoarthritis (17.22%).

Conclusion: The present study concluded that synovial lesions were most common in age above 65 years and the most common histopathological diagnosis was chronic nonspecific synovitis, followed by osteoarthritis.

Keywords: Synovial Lesions, Synovial Biopsies, Synovitis

INTRODUCTION

Synovium is the soft tissue which lines the spaces of diarthrodial joints, tendon sheaths, and bursae. It has continuous surface layer of cells known as intima and the underlying tissue known as subintima.¹ Synovial biopsies are indicated when only one joint is affected and helps in distinguishing various aetiologies such as infective, traumatic or crystal induced.² However, histopathological study of synovial biopsy has its own limitations and requires correlation of clinical, radiological and serological findings to come to conclusive diagnosis.³ A wide spectrum of pathologies involves the synovial lining of joints and periarticular tissues in human body. Synovial lesions can be classified into inflammatory etiology, infectious etiology, degenerative joint disorders, crystal induced arthritis, benign tumors, and tumor-like conditions such as synovial lipomatosis, tenosynovial giant cell tumor (TSGCT), synovial chondromatosis, pigmented villonodular synovitis (PVNS) and malignant tumors such as

synovial sarcoma.⁴ Diseases such as tuberculous synovitis and gout need treatment directed towards specific diagnosis which can be achieved by the use of relatively simple technique of arthroscopic synovial aspiration and biopsy.⁵ Arthroscopic biopsy has the advantage over closed needle biopsy being minimally invasive, less destructive to normal tissue, quicker recovery and rehabilitation leading to minimal hospital stay and less infection rate.⁶ The present study was conducted to analyse the pattern of Synovial Lesions from Synovial Biopsies in a Tertiary Care Hospital.

MATERIALS & METHODS

The present study was conducted to analyse the pattern of synovial lesions from synovial biopsies in a tertiary care hospital. 180 synovial biopsies received for period of one year in Department of Pathology were included in the study. Relevant clinical and radiological details were obtained. All the biopsies were stained for H and E and wherever necessary special stains like Zeihl-Neelsen stain for AFB and Prussian blue stain for hemosiderin were also done. The biopsy samples were fixed in 10% buffered neutral formaldehyde. Tissue was processed by increasing concentrations of alcohol and paraffin blocks were prepared. Sections were cut to 4-6 μ , stained by haematoxylin and eosin and examined under microscope for histopathological examination. Special stains and immuno histochemical studies were performed wherever necessary. The final diagnosis was made. The clinical and pathological data were collected from medical records and reviewed for patient demographics, age, sex and histological type of synovial lesion. Based on histomorphology, lesions were classified under four categories that is inflammatory joint diseases, degenerative joint diseases, tumors, and tumor-like conditions.

RESULTS

In the present study, the common age group affected was above 65 years. Minimum patients were in age group less than 20. Most common symptoms were pain and swelling. Most common histopathological diagnosis in the study was chronic nonspecific synovitis (47.22%), followed by osteoarthritis (17.22%).

Table 1: Age distribution of inflammatory joint disease

Age group	N(%)
<20	24(13.33%)
20-34	32(17.77%)
35-50	34(18.88%)
50-65	40(22.22%)
>65	50(27.77%)

Table 2: Distribution of various synovial lesions according to Aetiology (based on histomorphology)

Lesion	Diagnosis	N
Inflammatory Joint diseases		
A. Infections	Tuberculosis	10(5.55%)
	Septic arthritis	9(5%)
B. Autoimmune	Rheumatoid arthritis	8(4.44%)
C. Others	Chronic non-specific synovitis	85(47.22%)
Degenerative joint disease	Osteoarthritis	31(17.22%)
	Gout	1(0.55%)
	Pseudogout	2(1.11%)
Tumor and tumor like	Synovial chondromatosis	1(0.55%)

condition	GCT tendon sheath	1(0.55%)
	Synovial lipoma arborescence	4(2.22%)
	Synovial lipoma	2(1.11%)
Others	Necrotic tissue	3(1.66%)
	Osteo-cartilaginous loose bodies	3(1.66%)

DISCUSSION

Diseases related to synovium constitute major part of orthopedic outpatient department management. Diagnosis includes clinico-radiological and serological investigations. In cases where these findings are equivocal, specific tests become mandatory for appropriate management.⁷

It has been documented in literature that cases presenting as chronic synovitis of the knee could benefit by undergoing synovial membrane biopsy.⁸

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Tevatia MS et al analyze the pattern of synovial lesions to differentiate between different kinds of arthritis and found that Age group most affected was between 61 and 70 years, with male predominance. Osteoarthritis (OA) was the most common histopathological diagnosis. Early OA tissues showed greater lining layer thickness, vessel proliferation, and inflammation, while surface fibrin deposition along with fibrosis was noted in later stages.⁹

Literature search showed similar findings by Vijay PM et al, where chronic nonspecific synovitis was 71%, followed by tubercular synovitis 18.07%.¹⁰

Jayanthi KJ et al study the histopathological spectrum of synovial biopsies done for diagnostic evaluation and during replacement surgeries and revealed that the common age groups affected were between 50-70years. Males were affected more. Most common symptoms were pain and swelling. Knee was the commonest joint involved. Most common histopathological diagnosis was chronic nonspecific synovitis followed by tuberculous synovitis, septic arthritis and rheumatoid arthritis. Also, cases of benign tumors such as synovial lipoma arborescence, synovial lipoma, chondromatosis, and pigmented villonodular synovitis were noted in present study.¹¹

In study by Maithili et al chronic nonspecific synovitis was commonest (49%), followed by rheumatoid arthritis (14%), tubercular synovitis (10%).¹²

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