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Case Report

Olecrenon Bursitis: A Case with Clinico Radiological and Cytological Correlation

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Abstract

Cytsic lesions around joints are commonly encountered in clinical practice. Olecranon bursitis is one such common condition where the bursal cavity, superficial to the olecranon, becomes inflamed with or without superadded infection depending on the aetiology.Along with X ray and ultrasound, fine needle aspiration cytology is a commonly asked procedure for this entity which also provides pain relief by reducing pressure on the bursa. The thorough history taking supplemented by correlation of various findings in all these investigations can help add rational to decision-making processes aiding targeted treatment and better patient care. We present a case of olecranon bursitis to highlight the importance of history taking and to make the reporting cytologist aware of the minor variations that can be seen on the aspirate smears.

Keywords: Olecranon bursitis; FNAC; Cytology.

Introduction

Articular and periarticular cystic lesions can present with nonspecific symptoms like pain, and swelling. Bursitis is one such cystic lesion in which there is accumulation of excess synovial fluid that reduces friction between moving structures such as tendons, ligaments, bone, and skin.[1] Olecranon bursa being the most superficial and minimally vascularized is the most common to be prone to bursitis.[2] FNAC is a simple non invasive investigation that aids in categorization of the type of bursitis. The reporting cytologist must be aware of the normal and reactive cell types that can be seen in the microscopy of the same. Correlation of the clinical, radiological ultrasonographic and cytological findings completes the work up as done in our case.

Case Report

A 40year old male patient was referred from the department of surgery to the cytology wing of our central laboratory with a request for FNAC of the left elbow swelling. (Fig. 1A) According to the history taken by the pathologist, the patient developed the swelling nearly two weeks ago, and noticed it overnight after having put pressure on the left elbow while doing some physical activity. There was no history of pain or increase in size of

the same till he presented for aspiration. He also gave history of fall from height and injury over the elbow joint two months ago.

X ray of the elbow joint showed normal preservation of the bone with an overlying soft tissue swelling. (Fig. 2A). Ultrasound of the swelling showed moderate amount of hyper echoic fluid in the joint cavity and normal bony margin. (Fig. 2B) FNAC yielded 5ml of serous haemorrhagic fluid. (Fig. 1B). The swelling partially collapsed after aspiration.

Fig. 1A: Cystic swelling left elbow.

Fig. 1B: Haemorrhagic aspirate on FNAC

Fig. 2A: X ray AP and Lateral view left elbow joint.

Fig. 2B: USG Left elbow joint.

Smear were initially prepared from the aspirate which were acellular. Smears from the centrifuged sediment were hypercellular (Fig. 3A) showed plenty of mononuclear cell infiltrates consisting of lymphocytes, plasma cells and macrophages. (Fig. 3B). Also seen were many cyst macrophages and occasional reactive osteoblasts in a haemorrhagic background mixed with proteinaceous fluid. (Fig. 3C). Cytological features were suggestive of nonspecific inflammatory lesion- possibly bursitis.

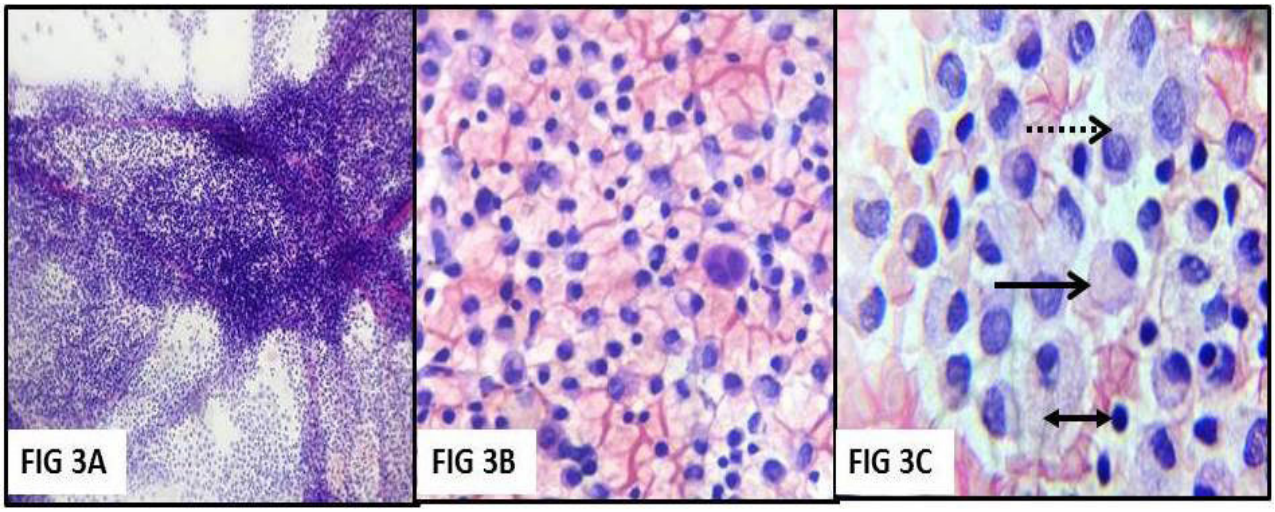

Fig. 3A: Microscopy showing hyper cellular smears – centrifuged deposits, H and E X 40.

Fig. 3B: Microscopy showing mononuclear inflammatory cells, H and E x 100.

Fig. 3C: Microscopy showing macrophages (dotted arrow), osteoblasts(single point arrow), lymphocytes (double point arrow), H and E x 1000 .

Gram stain of the same was negative. The patient was treated symptomatically.

Discussion

Cystic lesions in the articular and periarticular region are often encountered in clinical practice. One such lesion is bursitis which is encountered at the shoulder, elbow and hip and knee- joints that perform repetitive movements.[3] Bursa is a fluid filed sac or cavity that's counters friction at a joint. Bursitis is characterized by the inflammation or irritation of the bursa and abnormal increase in volume of fluid within the bursal cavity.Common aetiologies of olecrenonbursitis are a traumatic event or infection, neglected trauma or repetitive microtrauma.[4], The patient in our case gave history of putting prolonged pressure on the elbow which could have been the precipitating factor for the bursal irritation and appearance of the painless swelling.It is clinically manifested by swelling and pain at the site. Being the most superficially located in the human body coupled with a limited vascularity of the olecranon bursa is one of the postulated reason for infection via a transcutaneous route, even when no obvious wound is present.[5] Ultrasound is a good diagnostic modality to access the bursitis, especially those superficial in location. Increased echogenicity of the bursal cavity is seen when debris, blood in acute trauma, or puss accumulates. Also noted is the thickening of the hyper echoic synovial wall[6,7] Ultrasound in our case showed mild hyper echogenicity of the synovial wall and the cystic cavity.

Fine needle aspiration cytology (FNAC) has become increasingly popular for initial assessment of joint swellings due to its cost effectiveness and its minimal invasive nature compared to an open biopsy.Aspiration helps in reducing the pressure and pain over the bursa, and is also therapeutic at times.[8] The aspirated fluid can also be sent for culture and ancillary tests when clinically suspected. Our case on gross examination favoured a non-infective aetiology. The normal ESR, total leucocyte count and neutrophil count on a complete blood count further ruled out a septic cause for the same Aspirate was haemorrhagic substantiating the history of trauma as given by the patient. The usual cytology of bursitis shows hypo cellular smears in a mucoid background and varying proportion of hitiocyte like synovial cells and cellular elements like lymphocytes and neutrophils depending on the underlying cause.[9]

The direct aspirate smear in our case waspaucicellular for assessment, hence the fluid was centrifuged and the sediment examined. These smears showed a good number of osteoblasts with classic morphology. The closest morphological differential for an osteoblast is the plasma cell which can be differentiated by its eccentric nucleus and perinuclear hoff, unlike osteoblasts which have a protruding out nucleus and a hoff well separated from the nucleus. The osteoblasts were variable in size, indicating the reactive nature of these cells as a response to injury .This could be substantiated by the fact that the bone margins would have shown some reactive changes as our patient had given history of a bony injury couple of months ago. Another possibility would be that the bursa can be an abundant source of MNSC(multinucleated stem cells) with an ability to differentiate into osteoblasts as a reaction to trauma or irritation.[10] Other cells seen were mononuclear cells like lymphocytes few plasma cells with macrophages, consistent with an ongoing inflammatory process pathophysiology.

Routine aspiration and injection of non-infective bursitis with steroid and local anaesthetic is commonly followed, depending on the treating surgeon/orthopedician's discretion for non-infectivebursistis as in our case.

Conclusion

Olecranon bursitis can present with non- specific symptoms like periarticular fullness and swelling. Aspiration cytology in such cases can often give a clue to the infective or non-infective nature of the bursitis, aiding in targeted treatment and avoiding open biopsy. The reporting cytologist must be aware of the different cell types that can be seen as reaction to bursitis. This in correlation with radiological findings aids in giving a confident diagnosis.

References

1. Chatra PS. Bursae around the knee joints. Indian J Radiol Imaging 2012; 22: 2730.
2. Blackwell JR, Hay BA, Bolt AM, Hay SM. Olecranon bursitis: a systematic overview. Shoulder Elbow. 2014;6 (3):182-190. doi:10.1177/1758573214532787
3. Punia RS, Gupta S, Handa U, Mohan H, Garg S. Fine needle aspiration cytology of bursal cyst. ActaCytol. 2002;46 (4):690-692. doi:10.1159/000326977
4. Floemer F, Morrison WB, Bongartz G, Ledermann HP: MRI characteristics of olecranon bursitis. AJR Am J Roentgenol 2004; 183: 29–34

5. Perez C, Huttner A, Assal M, et. al. Infectious olecranon and patellar bursitis: short-course adjuvant antibiotic therapy is not a risk factor for recurrence in adult hospitalized patients. AntimicrobChemother 2010; 65: 1008–1014
6. Ivanoski S, Nikodinovska VV. Sonographic assessment of the anatomy and common pathologies of clinically important bursae. J Ultrason. 2019;19(78):212-221. doi:10.15557/JoU.2019.0032
7. Drakonaki EE, Allen GM, Wilson DJ: Ultrasound elastography for musculoskeletal applications. Br J Radiol 2012; 85: 1435–1445.
8. Aaron DL, Patel A, Kayiaros S and Calfee R. Four common types of bursitis: diagnosis and management. J Am AcadOrthopSurg 2011; 19: 359–367
9. Dodd LG, Major NM. Fine needle aspiration cytology of articular and periarticular lesions. Cancer (Cancer cytopathol).2002; 96 (3):157-65.
10. Song N. Amstrong AD, Li F, Ouyang H, Niyibizi C. Multipotent mesenchymal stem cells from human subacromialbursa : potential for cell based tendon tissue engineering. Tissue Eng Part A 2014;20(1-2):239-249