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STUDY TO KNOW THE NON-NEOPLASTIC SKELETAL DISEASE CLINICAL AND PATHOLOGICAL PATTERN

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Abstract:

Objective: *Non-neoplastic skeletal lesions, especially tuberculous and pyogenic osteomyelitis, form an important group of joint and bone diseases.*

Study Design: *A descriptive cross-sectional study.*

Place and Duration: *In the Pathology Department of Services Hospital Lahore for two year duration from June 2016 to June 2018.*

Methods: *After detailed documentation of clinical account, bone biopsies of 172 patients with variable clinical symptoms under microscope were reviewed.*

Results: *There were 117 male and 55 female (E: K = 2.2: 1). The maximum number of patients with a mean age range of 11-20 years (n = 51) and 49.5 ± 6 years was the mean age. A wide range of clinical lesions including inflammatory (n = 92), infectious (n = 53), cysts (n = 07) and synovial (n = 20) diseases were observed. Non-specific inflammation (n = 52) followed by pyogenic infections (n = 32) and tuberculosis osteomyelitis (n =) formed the main group.*

Conclusion: *Neoplastic bone diseases are very diverse. Men are affected twice by women and most diseases occur in young age groups. Non-specific inflammation and tuberculosis osteomyelitis are the main group. Lower extremities are commonly affected.*

Key words: *non-neoplastic skeletal disease, tuberculosis osteomyelitis, synovial disease.*

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INTRODUCTION:

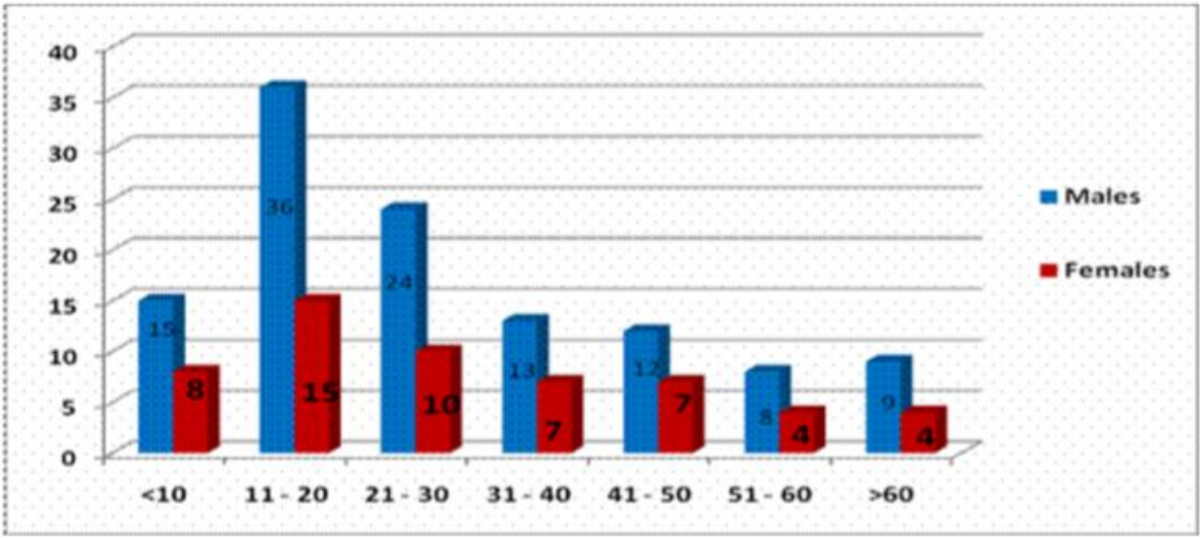
Bone infections are relatively rare lesions and pathologists generally do not have clinical experience of these lesions[1]. Numerous non-neoplastic bone lesions are seen in typical regions and in some age groups. Clinical history, radiographic evaluation and a systematic diagnosis of histopathology (in some cases) are required[2]. Since many bone lesions overlap, an experienced doctor systematically combines radiological and histopathological results to plan and provide the best possible patient management. So far, biopsy is less common than non-neoplastic conditions of bone lesions[3]. The causative organism (pyogenic bacterium or mycobacteria) can be usefully classified according to the pathway, duration and anatomical location of the infection. Long bones in children are usually affected. In adults, the vertebra and pelvis are the most affected[4]. Acute osteomyelitis is almost always inevitable in children. When adults are affected, weight loss can be caused by intrusive drug use, by infectious teeth infected by the root, or by disturbing host resistance due to other diseases or medications (eg, immunosuppressive therapy). Osteomyelitis is a secondary complication in 1 to 3% of patients with pulmonary tuberculosis. In this case, the bacteria, in general, are spread to the bone through the circulatory system, first infected with synovium (due to high oxygen concentration) before spreading to the adjacent bone. Long bones and vertebrae tend to be affected by tuberculosis osteomyelitis[5]. The diagnosis of osteomyelitis is usually based on radiological results showing a lytic center with sclerosis rings. A culture of bone biopsy material is required to define a specific pathogen; Alternative sampling methods, such as needle bars or surface cleaning sticks, are easier to apply, but do not provide reliable results. Skeletal tuberculosis accounts for 10 to 35 percent of cases of extrapulmonary tuberculosis and in general about 2 percent of all cases of tuberculosis[6]. The reported rates of extrapulmonary tuberculosis are higher among immigrants from regions endemic to developed countries; this may be due in part to the procedures for determining the migration of pulmonary tuberculosis[7]. The most common form of skeletal tuberculosis is Pott disease; this entity includes about half of cases of musculoskeletal tuberculosis. Tuberculosis, the most common musculoskeletal system, is usually tuberculosis arthritis following extraospinal tuberculosis osteomyelitis.

MATERIALS AND METHODS:

This descriptive cross-sectional study was held in the Pathology Department of Services Hospital Lahore for two-year duration from June 2016 to June 2018. A consecutive hundred patients (mean age 49.5 + 6, range 02 to 97 years) who were admitted to the primary hospital for various bone diseases were selected for this study. The clinical and laboratory data of these patients, including age, family history, and accompanying diseases including trauma history, were recorded in separate forms. General observations; The biopsy location, laterality, size, color, consistency of biopsy, radiological findings and type of surgery were taken into consideration. The microscopic features of the lesion are the type of lesion, the degree and stage of inflammation, necrosis and stromal reaction it contains. All selected patients gave their consent in writing. The sites were divided into 8 groups: craniofacial, vertebrae, including sacrum, scapula, clavicle, rib, sternum, pelvic bone, limb bones and bone marrow biopsy. Samples were preserved into formalin and first calcined in HNO 3, followed by routine treatment in an automated processor at increased alcohol grades, rinsed in xylene and put into paraffin wax. 3-5 mm thick sections were cut using a rotary microtome. The slides were stained with hematoxylin and eosin (H & E) for morphological diagnosis. Special spots were made when needed. Data were entered and analyzed using SPSS 18.0. Mean ± S.D Quantitative variables (standard deviation) are given. Frequency and percentages are given for qualitative variables. Pearson Chi Square and Fisher Exact tests were performed to observe the relationship between qualitative variables. P <0.05 was considered statistically significant.

RESULTS:

A total of 172 biopsies were taken from patients with different skeletal lesions located in variable regions. There were 117 males and 55 females (M: F = 2.2: 1). The mean age of these patients was 49.5 ± 6 years (range 02 to 97 years), the maximum number of cases (n = 51) was between 11 and 20 years of age.



The clinical history varied according to the region and the nature of the lesions; The majority of patients (75%) had localized pain and sensitivity, 65% had fever and / or ulceration or ejaculation lesions, and 25% had fractures of bone. The most common site was around the knee (32.3%), followed by the ankle and spine (21%), the shoulder (9.1%) from the upper extremity wrist to the elbow (12.1%), and the jaw (8.2%). Approximately 35% of cases had a history of trauma. A wide variety of lesions including inflammatory, infectious, cystic and synovial diseases region or degree of injury were given in (Table 1).

Diseases	Males	Female	n=	Age
Inflammation (92)				
Ac non specific	14	09	23	2-76
Chc non Specific	35	17	52	5-91
Rheumatoid arthritis	05	06	11	19- 63
Gouty Arthritis	03	03	06	22-26
Infection (20)				
Dentigerous	02	01	03	14-51
Keratinous	02	--	02	26& 42
Periapical radicular	02	--	02	31& 38
Synovial (20)				
Synovitis	--	02	02	42& 54
Hyperplasia	04	03	07	31-66
Fibrosis	02	--	02	73& 87
Degenerative	04	05	09	51-76

Whereas no significant association was found between (p-value>0.05) and the type, site or grade of the lesion and the age, gender or clinical symptoms etc.

DISCUSSION:

Nonspecific osteomyelitis in children and adolescents may be diagnosed in patients aged 2-16 years and may be clinically acute, subacute, or chronic[8-9]. Although acute osteomyelitis is less common, diagnosis and treatment are the main challenge. Staphylococcus aureus represents 40-80% of infections and then beta-hemolytic streptococci of

group A9. This is consistent with our study of the maximum number of patients with infectious osteomyelitis (54.2%) as staphylococcal positive cultures[10-11]. The majority of cases of pyrogenic osteomyelitis were located in the lower extremity and then in the upper extremity bones. The results were also consistent with the results of Rasool, which also referred to the incidence of osteomyelitis in the lower extremities[13]. Tuberculosis has been reported in all bones of the body and is an important public health problem. Although osteomyelitis is less common in industrialized countries, most of the bone disease observed in developing countries is similar to this study. Tuberculous osteomyelitis has been reported in all bones of the body[14]. In addition, the spine is the most common site in adults and rarely in children[15]. This is consistent with the findings that tuberculous osteomyelitis was observed especially in the upper and lower extremity bones and mostly in adults (67%).

CONCLUSION:

Neoplastic bone diseases are very diverse. Men are affected twice by women and most diseases occur in young age groups. Non-specific inflammation and tuberculosis osteomyelitis are the main group. The lower extremities are the most affected areas.

REFERENCES:

1. Jones, Terrell E., Aaron J. Wyse, and Sarah E. Gibson. "Hematolymphoid neoplasms are common in bone marrow biopsies performed for non-specific, diffuse marrow signal alterations on magnetic resonance imaging." *Annals of diagnostic pathology* 40 (2019): 7-12.
2. Alagheband, Sharzad, Catherine Cranford, and Patricia Stewart. "Mast Cell Disorders and Anaphylaxis." *Allergy and Asthma: The Basics to Best Practices* (2019): 1-33.
3. Agaimy, Abbas. "Paraneoplastic Disorders Associated with Miscellaneous Neoplasms with Focus on Selected Soft Tissue and Undifferentiated/Rhabdoid Malignancies." In *Seminars in diagnostic pathology*. WB Saunders, 2019.
4. Suzuki, Kei, Takeshi Matsumoto, Yoshiaki Iwashita, Ken Ishikura, Masaki Fujioka, Hideo Wada, Naoyuki Katayama, and Hiroshi Imai. "Clinicopathological features of TAFRO syndrome complicated by acquired hemophilia A and development of cardiopulmonary arrest that were successfully treated with VA-ECMO and tocilizumab." *International journal of hematology* (2019): 1-7.
5. Javaugue, V., Debiais-Delpech, C., Nouvier, M., Gand, E., Chauvet, S., Ecotiere, L., Desport, E., Goujon, J.M., Delwail, V., Guidez, S. and Tomowiak, C., 2019. Clinicopathological spectrum of renal parenchymal involvement in B-cell lymphoproliferative disorders. *Kidney International*.
6. Crawford, Megan R., Susan E. Williams, Leila Khan, and Angelo Licata. "Malignancies of the Bone." In *Metabolic Bone Diseases*, pp. 245-261. Springer, Cham, 2019.
7. Kumarasinghe, M. Priyanthi, Spiro C. Raftopoulos, and Gregory Y. Lauwers. "Stomach: Inflammatory Patterns." In *Endoscopic Biopsy Interpretation*, pp. 115-155. Springer, Cham, 2019.
8. López-Robles, Joaquín, Alejandra Pérez-Plaza, Luis Requena, and Carlos Santonja. "Osteoma Cutis Arising in Common Blue Nevus (Blue Osteonevus): A Clinicopathologic, Immunohistochemical, and Dermoscopic Study." *The American Journal of Dermatopathology* 41, no. 2 (2019): e19-e21.
9. Boiocchi, Leonardo, Robert P. Hasserjian, Olga Pozdnyakova, Waihay J. Wong, Jochen K. Lennerz, Long Phi Le, Dora Dias-Santagata, Anthony J. Iafrate, Gabriela S. Hobbs, and Valentina Nardi. "Clinicopathological and molecular features of SF3B1-mutated myeloproliferative neoplasms." *Human pathology* 86 (2019): 1-11.
10. Kim, Wook Youn, Ivonne A. Montes-Mojarro, Falko Fend, and Leticia Quintanilla-Martinez. "Epstein-Barr Virus-associated T and NK-cell lymphoproliferative Diseases." *Frontiers in Pediatrics* 7 (2019).
11. Cadavid, Ana Maria Hoyos, E. Kaminagakura, M. F. S. D. Rodrigues, C. A. L. Pinto, T. H. N. Teshima, and F. A. Alves. "Immunohistochemical evaluation of Sonic Hedgehog signaling pathway proteins (Shh, Ptch1, Ptch2, Smo, Gli1, Gli2, and Gli3) in sporadic and syndromic odontogenic keratocysts." *Clinical oral investigations* 23, no. 1 (2019): 153-159.
12. Rosebush, Molly S., Ashleigh N. Briody, and Kitrina G. Cordell. "Black and Brown: Non-neoplastic Pigmentation of the Oral Mucosa." *Head and neck pathology* (2019): 1-9.
13. Mello, Lauren S., Welden Panziera, Marcele B. Bandinelli, Luciana Sonne, David Driemeier, and Saulo P. Pavarini. "Clinical and pathological aspects of bovine lymphoma affecting the spinal cord." *Pesquisa Veterinária Brasileira* 39, no. 1 (2019): 32-39.
14. da Silva, Gustavo Telles, Anke Bergmann, and

Luiz Claudio Santos Thuler. "Incidence and Risk Factors for Bone Metastasis in Non-Small Cell Lung Cancer." *Asian Pacific journal of cancer prevention: APJCP* 20, no. 1 (2019): 45.

15. Michal, M., Agaimy, A., Folpe, A. L., Zambo, I., Kebrle, R., Horch, R. E., ... & Kazakov, D. V. (2019). Tenosynovitis With Psammomatous Calcifications: A Distinctive Trauma-associated Subtype of Idiopathic Calcifying Tenosynovitis With a Predilection for the Distal extremities of Middle-aged Women—a Report of 23 Cases. *The American journal of surgical pathology*, *43*(2), 261-267.