

Original article:

**Assessment of Tuberculous Hip Bone Infection in Children:
A Clinical Study**

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ABSTRACT

Background: Hip fracture is one of the most common causes of admission to an orthopedic ward and is associated with high rates of mortality and morbidity. The present study was conducted to study cases of tuberculosis of hips in children.

Materials & Methods: The present study was conducted in the department of Orthopedics, Navodaya Medical College Hospital & Research Centre, Raichur, Karnataka (India) on 28 patients of both genders with hip tuberculosis. The histopathological criteria for diagnosis were the presence of chronic granulomatous inflammation with caseation and/or presence of epithelioid cells and lymphocyte configuration of tubercle. Radiographic type was analyzed.

Results: Out of 28 patients, males were 12 and females were 16. 5 males and 7 females had left side and 7 males and 9 females had right side involvement. The difference was non- significant ($P > 0.05$). Radio graphically, 3 were normal, 6 were travelling, 2 were dislocating and 1 was atrophic in males and 5 were normal, 5 were travelling, 4 were dislocating and 2 were atrophic in females. The difference was significant ($P > 0.05$). Result was excellent (40%), good (22%), fair (27%) and poor (11%). The difference was significant ($P < 0.05$).

Conclusion: Tuberculosis of hip is not uncommon among children. Proper management may prevent developing disease in children.

Key words: Hip, Orthopedic Tuberculosis.

INTRODUCTION

Hip fracture is one of the most common causes of admission to an orthopedic ward and is associated with high rates of mortality and morbidity. For this reason, estimates of fracture risk are increasingly important for defining treatment thresholds; treatment of these fractures should, of necessity, begin with prevention, and that underlines the importance of gathering meaningful and accurate data. The most common form of articular tuberculosis is spondylitis followed by arthritis of weight bearing joints.¹ The spine is the most common site followed by the hip joint which constitutes approximately 15% of all cases. Tuberculosis can affect any bone, but most commonly it attacks the spine and weight-bearing joints. Tuberculous osteomyelitis, or bone infection, causes constant pain in the bone itself and can cause complications in nearby tissues, such as carpal tunnel syndrome if the wrist is affected.²

Tuberculosis can affect several tissues outside of the lungs including the spine, a kind of tuberculous arthritis of the intervertebral joints. The occurrence of additional symptoms depends on where the disease has spread beyond the chest and lungs. When TB spreads to the bones and joints, it can cause pain and swelling of the knee or hip.³ Before the advent of modern antitubercular drugs, the treatment of tuberculosis hip was expectant. Arthrodesis was considered the ultimate aim for tubercular arthritis of hip as it was believed that mobility will reactivate the tubercular bacteria. Gradually, with availability of antitubercular chemotherapy, concept of regaining or restoring mobility in the diseased hip came into vogue. The management of tuberculosis hip in children aims at identifying the disease in predestruction stage, instituting multidrug antitubercular chemotherapy combined with necessary surgical interventions and restoring hip function to normal/near normal as possible.⁴ The present study was conducted to study cases of tuberculosis of hips in children.

MATERIALS & METHODS

The present study was conducted in the department of Orthopedics, Navodaya Medical College Hospital & Research Centre, Raichur, Karnataka (India). It included 28 patients of both genders with hip tuberculosis. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

The histopathological criteria for diagnosis were the presence of chronic granulomatous inflammation with caseation and/or presence of epithelioid cells and lymphocyte configuration of tubercle. The clinical criteria were pain, limping, deformity and fullness around the hip joint, restriction of movements, presence of abscess with or without discharging sinus, limb shortenings. Extraoral radiographs of hip bone were taken for diagnosis. Radiographic type was assessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Table I: Demographic data of patients

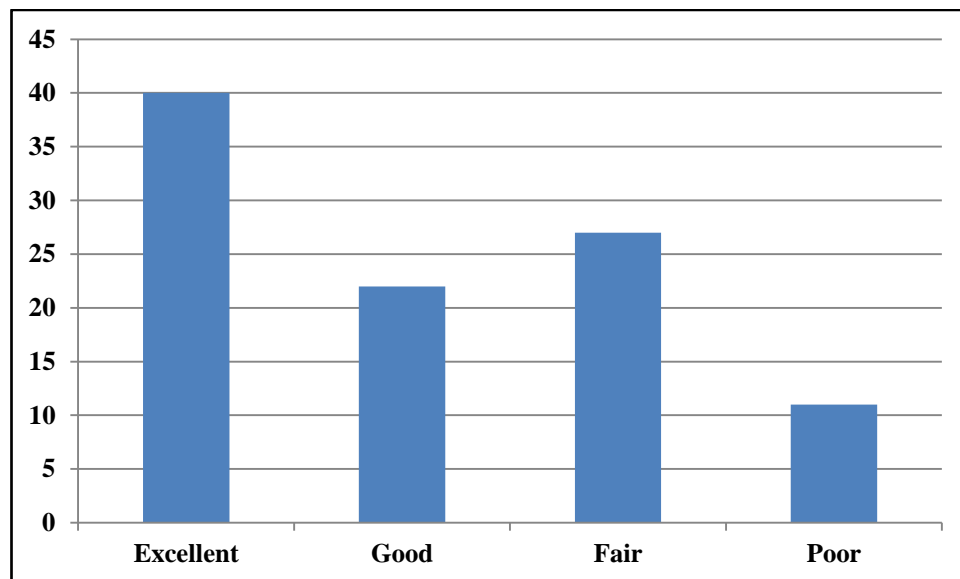
Parameters		Males	Females	P value
Side	Left	5	7	0.1
	Right	7	9	
Radiographic finding	Normal	3	5	0.5
	Travelling	6	5	
	Dislocating	2	4	
	Atrophic	1	2	

RESULTS

Table I shows that out of 28 patients, males were 12 and females were 16. 5 males and 7 females had left side and 7 males and 9 females had right side involvement. The difference was non-significant ($P > 0.05$). Radiographically, 3 were normal, 6 were travelling, 2 were dislocating and 1 was atrophic in males and 5 were normal, 5 were travelling, 4 were dislocating and 2 were atrophic in females. The difference was significant ($P > 0.05$).

Graph I shows that result was excellent (40%), good (22%), fair (27%) and poor (11%). The difference was significant ($P < 0.05$).

Graph I: Results of treatment as per moon's criteria



DISCUSSION

Hip fractures are a common source of morbidity and mortality among elderly people worldwide. Subluxated or dislocated hips following infection are difficult to be managed to obtain a stable, mobile, congruous, and concentric joint. Generally, such hips with advanced lesion luxate further and/or finally result in osteoarthritic or ankylosis even after disease healing. Skeletal tuberculosis in the pediatric age group is uncommon with a reported incidence of 5-6% of pediatric extra pulmonary cases.⁵

Tuberculosis (TB) of hip presents significant clinical problems, though undoubtedly it has become rarer than before. The disease once established in the hip leads to progressive destruction of the joint if untreated at an early stage, and may even proceed to pathological dislocation. The pain, loss of movement, and progressive development of deformity results in loss of function of the affected hip.⁶

In present study, out of 28 cases, 12 were seen in males and 16 in females. In a study by Daniz et al⁷ among the 687 patients, the mean ages of the women and men were 74.8 and 68.5 years, respectively. There were 220 patients who had femoral neck fracture (32%), 419 who had intertrochanteric fracture (61%), and 48 who had subtrochanteric fracture (7%).

Hip tuberculosis constitutes nearly 20% of all cases of skeletal tuberculosis. The exact proportion of tubercular hip affection in the pediatric age group is not known but the disease is rare. There is a paucity of literature regarding osteoarticular tuberculosis of hip in children with only few dedicated series available in recent indexed English literature and probably none from the Indian subcontinent. Thus, the clinicoradiological course in osteoarticular tuberculosis of hip following modern anti tubercular chemotherapy is scantily studied.⁸

We observed that radio graphically, 3 were normal, 6 were travelling, 2 were dislocating and 1 was atrophic in

males and 5 were normal, 5 were travelling, 4 were dislocating and 2 were atrophic in females. In the last three decades there has been a remarkable advances in the diagnosis and management. All efforts were made to preserve the hip anatomy, joint mobility and growth plates of the femoral head and tri-radiate cartilage until maturity by avoiding the conventional clean radical debridement surgery. It is known that during the early stage the disease is predominantly synovial, and that adequate treatment could prevent damage to the joint cartilage and underlying bone and thereby preserve joint function, particularly in children. Campbell⁹ and Hoffman demonstrated that Shanmugasundaram¹⁰ radiological appearance of the hip at presentation accurately predicts the final outcome.

CONCLUSION

Tuberculosis of hip is not uncommon among children. Proper management may prevent developing disease in children.

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