

ORIGINAL ARTICLE

Evaluation of tuberculosis of hip bone in children

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ABSTRACT:

Background: Hip tuberculosis constitutes nearly 20% of all cases of skeletal tuberculosis. The present study was conducted to evaluate cases of tuberculosis of hips in children. **Materials & Methods:** 24 patients of hip tuberculosis of both genders was recorded. Extraoral radiographs of hip bone were taken and parameters such as side, treatment outcome etc. was recorded. **Results:** Out of 24 patients, males were 13 and females were 11. Right side was involved in 14 cases and left side was seen in 10 cases. The difference was non-significant ($P>0.05$). Pre-operatively radio graphically, 2 were normal, 3 were travelling, 8 were dislocating, 4 were protrusio acetabuli and 1 was atrophic. Post-operatively, 8 were normal, 3 were travelling, 4 were dislocating and 3 was atrophic and 2 were protrusio acetabuli. The difference was significant ($P<0.05$). Result was excellent (11), good (5), fair (3) and poor (1). The difference was significant ($P<0.05$). **Conclusion:** Tuberculosis of hip is not uncommon among children. Excellent results were achieved as per moon's criteria.

Key words: Tuberculosis, Hip, Children

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INTRODUCTION

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.¹ 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 clinico-radiological course in osteoarticular tuberculosis of hip following modern anti tubercular chemotherapy is scantily studied.²

Pott disease or Pott's disease is a form of tuberculosis that occurs outside the lungs whereby disease is seen in the vertebrae. 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. For example, if TB spreads to the lymph nodes, it can cause swollen glands at the sides of the neck or under the arms. 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 anti-tubercular 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.⁴

Gradually, with availability of anti-tubercular 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 pre-destruction stage, instituting multidrug anti-tubercular chemotherapy combined with necessary surgical interventions and restoring hip function to normal/near normal as possible.⁵ The present study was conducted to evaluate cases of tuberculosis of hips in children.

MATERIALS & METHODS

The present study consisted of 24 patients of hip tuberculosis of both genders. All were informed regarding the study and parental written consent was obtained.

Data such as name, age, gender etc. was recorded. Extraoral radiographs of hip bone was taken and osteopenia, diminution in joint space, erosions of articular margins, lytic lesions, pathological fractures, subluxations or dislocations were considered for diagnosis. Shanmugasundaram⁵ radiological classification was used in this study. Three different patterns were observed in the unclassified type - triradiate, pseudarthrosis coxae and ankylosed type. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 24		
Gender	Male	Female
Number	13	11

Table I shows that out of 24 patients, males were 13 and females were 11.

Table II Side of involvement

Side	Number	P value
Right	14	0.12
Left	10	

Table II shows that right side was involved in 14 cases and left side was seen in 10 cases. The difference was non-significant ($P>0.05$).

Table III Comparison of radiographic findings

Parameters	Pre- treatment	Post- treatment	P value
Normal	2	8	0.02
Traveling	3	3	
Dislocating	8	4	
Atrophic	4	3	
Protrusio acetabuli	3	2	

Table III shows that pre- operatively radio graphically, 2 were normal, 3 were travelling, 8 were dislocating, 4 were protrusio acetabuli and 1 was atrophic. Post- operatively, 8 were normal, 3 were travelling, 4 were dislocating and 3 was atrophic and 2 were protrusio acetabuli. The difference was significant ($P<0.05$).

Table IV Results of treatment as per moon's criteria

Result	Number	P value
Excellent	11	0.01
Good	5	
Fair	3	
Poor	1	

Table IV shows that result was excellent (11), good (5), fair (3) and poor (1). The difference was significant ($P<0.05$).

DISCUSSION

Tuberculosis (TB) of hip presents significant clinical problems, though undoubtedly it has become rarer than before.⁶ 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.⁷ The pain, loss of movement, and progressive development of deformity results in loss of function of the affected hip.⁸ 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.⁹

The most common form of articular tuberculosis is spondylitis followed by arthritis of weight bearing joints (especially knee and hip).¹⁰ 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.¹¹ TB disease can be treated by taking several drugs for 6 to 9 months. There are 10 drugs currently approved by the U.S. Food and Drug Administration (FDA) for treating TB. Of the approved drugs, the first-line anti-TB agents

that form the core of treatment regimens are: isoniazid (INH), rifampicin, streptomycin, ethambutol, pyrozinamide etc.¹² The present study was conducted to assess cases of tuberculosis of hips in childrens.

We observed that out of 24 patients, males were 13 and females were 11. Moon et al¹³ in their study forty-three children of TB hip were analyzed. 24 children of the early series were treated with streptomycin (S), isoniazid (H) and PAS (Pa) for 18 months (3HPaS, 15 HPa), while 19 children in the later series were treated with isoniazid (H), rifampicin (R) and ethambutol (E) or pyrazinamide (Z) for 12 months [(12 RHE(Z)]. Five out of 18 children with radiologically normal appearing type hip TB were treated with chemotherapy alone and 38 children were subjected to surgery; simple synovectomy alone in 31 hips, joint debridement in six hips, and proximal femoral varisation osteotomy in one. TB of hip healed with minimum sequelae in all children. In 18 Type one hip TB, normal hip (synovial form) anatomy was maintained, and in 25 patients with advanced lesions some defect in the femoral head and acetabulum was noticed, though painless good hip motion was maintained. Excellent to good results were obtained in 31 children (73.1%), fair in eight (18.6%), and poor in four (9.3%). In four patients with poor results, there was some residual morphological defect in the hip. None developed ankylosis of hip.

We found that right side was involved in 14 cases and left side was seen in 10 cases. Pre- operatively radio graphically, 2 were normal, 3 were travelling, 8 were dislocating, 4 were protrusio acetabuli and 1 was

atrophic. Post- operatively, 8 were normal, 3 were travelling, 4 were dislocating and 3 was atrophic and 2 were protrusio acetabuli. We observed that result was excellent (11), good (5), fair (3) and poor (1). Agarwal et al¹⁴ evaluated the pretreatment radiological presentation and the clinicoradiological outcome at the completion of 1 year chemotherapy in osteoarticular tuberculosis of hip in children to prognosticate correlation between them. They analyzed the clinical and plain radiographic findings in 27 patients with an age of 12 years or younger. The male female ratio was 11:16. The left hip was involved more frequently than the right (17:10). The average age was 7.37 years (range, 2-12 years). In the pretreatment radiographs, 9 hips were normal, 6 traveling, 4 dislocating, 1 protrusio acetabuli, 3 atrophic and 4 unclassified types (3 triradiate; 1 pseudarthrosis coxae). There were no Perthes and mortar pestle at the initial presentation. Post-treatment, the types changed to 9 normal, 3 Perthes, 1 protrusio acetabuli, 1 atrophic, 4 mortar pestle and 9 unclassified types (3 triradiate, 3 pseudarthrosis coxae and 3 ankylosed). There were 37% excellent, 18.5% good, 26% fair and 18.5% poor results. The prognosis was best with initial “triradiate” and normal types and worst with posttreatment atrophic and “ankylosed” types.

CONCLUSION

Authors found that tuberculosis of hip is not uncommon among children. Excellent results were achieved as per moon’s criteria.

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