



## SCHANZ OSTEOTOMY A FADING ART

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**KEYWORDS :** Schanz Osteotomy

## INTRODUCTION

The pelvic support osteotomy is a useful surgical procedure for the salvage of damaged hips of patients in whom arthrodesis or hip arthroplasty are not appropriate either surgically or financially. It is a procedure that has much to offer the adolescent or young adult who has painful limping, restriction of hip motion and early onset fatigue to walking as a consequence of hip destruction from AVN, TB hip, old neglected dislocation of hip, neglected acetabulum fracture or persistent severe hip dysplasia. A successful pelvic support osteotomy reduces limp by reducing the Trendelenburg lurch and compensating the limb length inequality. It provides stability by taking support on the hemipelvis and facilitates a more energy-efficient gait. In this article, the authors present their own experience with palliative Schanz osteotomy.

## MATERIAL AND METHODS

From 2010 to 2019, 30 hip joints in 30 patients were treated by a palliative proximal femoral Schanz valgus osteotomy. In our study palliative Schanz valgus femoral osteotomy was indicated for hip destruction from AVN [18 patients], TB hip [7 patients], old neglected dislocation of hip [2 patients] and neglected acetabulum fracture [3 patients]. All patients included in this study were diagnosed preoperatively clinically and radiologically.

Patients were aged from 20 to 50 years with a mean age of 38 years. Inclusion criteria were based on clinical presentation and radiological assessment. Patients with unilateral hip involvement and some free abduction were only included in our study. Patients with bilateral hip joint involvement and no free abduction were not included in our study.

In the postoperative evaluation the main emphasis was focused on the clinical presentation of the patient, improvement of the hip range of motion, gait improvement and pain relief. Radiography examination was carried out at 1, 3, 6 and 12 months after the surgery, and subsequent clinical follow-up was at 6 month interval for 3 years.

## SURGICAL TECHNIQUE

Patient is positioned supine on normal table. Hip joint and proximal femur is exposed by anterolateral approach. Femoral head and neck is excised up to the base of the greater trochanter with care being taken to leave a smooth surface. The acetabulum is inspected and any osteophytes remaining around its margin are removed. Osteotomy is carried out below the lesser trochanter and at the level of the ischial tuberosity. The osteotomy is now fixed with Proximal tibia L buttress or hockey stick plate applied in the coronal plane over the anterior aspect of the trochanter and shaft.

The proximal fragment tends to flex after the osteotomy is completed, and this angulation must be reduced while plate is being applied. One must also guard against the leg falling into internal rotation. As a safeguard we used to put marking on the ant. and lat. surface with a saw as a reference line to be

aligned after osteotomy and before fixation.

Postoperatively skeletal traction of about 7 pounds is applied for 45 days through a pin in the upper tibia to control rotation and to prevent shortening by holding the greater trochanter below the level of the acetabulum. Gradual mobilization and stretching of hip joint is started for next one month with partial or touch down weight bearing only. Full weight bearing was started after 3 months.

## RESULTS

The postoperative assessment was focused on hip range of motion improvement, gait improvement, pain relief, and radiological appearance. The bony union of the femoral osteotomy was radiologically confirmed at six months in all patients. The clinical assessment was routinely done at 1, 3, 6 and 12 months postoperatively with subsequent 6 month follow-up for 3 years. The hip range of motion increased in all patients compared to preoperative findings and was considered significant in 26 hips (86.6%) when abduction of 30–35° was achieved. The remaining four hips had improved range of movement with final abduction less than 30°.

Pain relief was achieved in 28 cases (93.3%). A transient hip pain persisted in two patients (6.6%). Asymmetrical hip position ("windblown hip")<sup>21</sup> was noticed in one patient (3.3%). A persistence of fixed lumbar hyperlordosis was noticed in a significant number of patients. In our study, this group was represented by 11 patients (36.6%). It is clear that the lumbar lordosis is not affected by Schanz valgus osteotomy and remains unchanged after the surgery.

## DISCUSSION

Hip destruction can be a sequelae of AVN, TB hip, old neglected dislocation of hip and neglected acetabulum fracture, neonatal septic arthritis etc.

Palliative procedures such as Girdlestone's proximal femoral excision<sup>3</sup>, Milch valgus proximal femoral osteotomy with femoral head excision<sup>4</sup>, Schanz valgus subtrochanteric osteotomy<sup>6</sup>, hip fusion<sup>1, 2, 5, 7</sup> or total hip replacement are the most commonly used methods of treatment for hip destruction in these patients. Removal of the head and neck of the femur (Girdlestone procedure) was originally devised to excise bone destroyed by tuberculosis and later for osteoarthritis of the hip.<sup>8,9,10</sup>

We document good results in 28 (93.3%) cases of Schanz valgus proximal femoral osteotomy in 30 patients with hip destruction from AVN, TB hip, old neglected dislocation of hip and neglected acetabulum fracture aged 20 to 50 years. Transient pain after surgery which resolved within the first three postoperative months was seen in less than 10% of patients and has been explained by the joint capsule and the surrounding soft tissues gradual lengthening in the immediate postoperative recovery period.

Palliative Schanz valgus proximal femoral osteotomy is a recognised surgical method to achieve good pain relief , increase range of movement and to facilitate crossed leg sitting and squatting which is not possible with advanced total hip arthroplasty at the cost of some instability and shortening in patients with hip destruction from AVN, TB hip, old neglected dislocation of hip and neglected acetabulum fracture . The advantages of cross leg sitting and squatting is more appreciated by Indian population compared to the western.

**CASE - 1**



(a) preop X Ray Of AVN Left Hip Joint



(b) Postop X Rays Showing Union Of Osteotomy



(c) postop Clinical Picture Showing Sitting Crossed Leg & Squatting

Postop Clinical Picture Showing Compensatory Shortening



**CASE-2**



(a) Preop X Ray Of An Old Unreduced Central Fracture Dislocation Of Hip



(b) postop X Ray Showing Osteotomy Site Union



Postop Clinical Picture Showing Squatting

Postop Clinical Picture Showing Sitting Crossed Leg



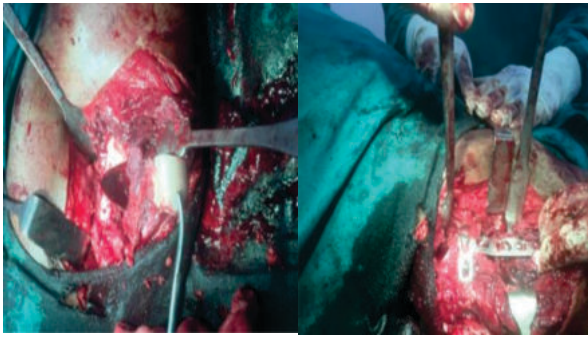
Postop Clinical Picture Showing Compensatory Shortening

Postop Clinical Picture Showing Compensatory Shortening

**CASE - 3**



a) preop X Ray Of An Old Unreduced Dislocation Of Hip

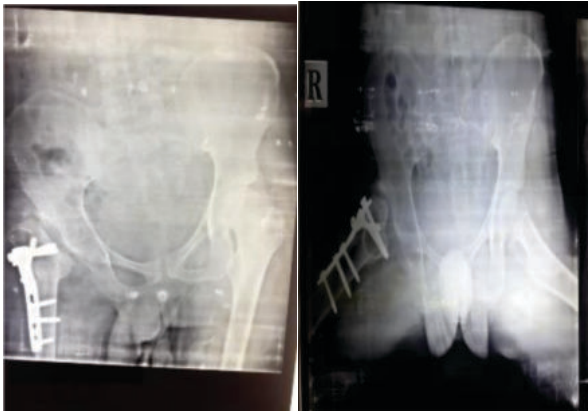


(b)intraoperative Picture Showing Osteotomy With Wedge Resection

(c)intraoperative Picture Showing Fixation Of Osteotomy With L Plate



(d)immediate Postop X Ray Showing Fixation Of Osteotomy Site



(e)followup Postop X Ray Showing Union Of Osteotomy Site

(f)followup Postop X Ray Showing Union Of Osteotomy Site



(g)postop clinical picture Showing Sitting Crossed Leg

(h)postop clinical picture Showing Squatting

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