



**ORIGINAL RESEARCH PAPER**

**Orthopaedics**

**NEED FOR SOPHISTICATED INSTRUMENTATION FOR ARTHROSCOPIC DISCOID MENISCAL SURGERIES IN CHILDREN**

**KEY WORDS:** Meniscal tear  
Pediatric arthroscopic surgery

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**ABSTRACT**

Meniscal tear bears a rare event in the pediatric age group is seldom reported. But with advances in the medical and diagnostic modalities more and more number of cases is being detected and treated. But the surgical treatment of the same can be complicated and futile without instrumentation and techniques. We hereby report a young girl of seven years treated with sophisticated arthroscopic instrumentations suited for her age group and knee size.

**INTRODUCTION**

Discoid meniscus, although it's one of the common anomalies of the meniscus, is seldom picked up during the childhood. Even after 13 decades of its discovery by Young<sup>1</sup> in 1889, the incidence of the same is not accurately found out. Most of the literature says the incidence is between 0.4% -20 % in general population<sup>2</sup>. With the advances in medicine and diagnostic modalities the incidence and aggressive management of the condition is increasing.

Discoid meniscus is often revealed clinically during childhood. However, many children with discoid meniscus remain asymptomatic and therefore require no treatment. but since the histology of discoid meniscus is different from that of normal meniscus, it is prone for tearing. The histology and ultrastructure of discoid meniscus is different from that of normal meniscus. This is because of the fact that the discoid meniscus is characterized by decreased collagen fibres and loss of normal collagen orientation, and intrameniscal mucoid degeneration<sup>3</sup> Which makes even the surgical treatment tricky, producing iatrogenic injuries with instrumentation and thus warrants skills experience and planning

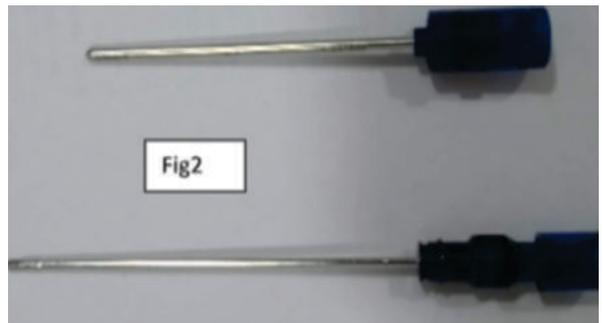
**CASE STUDY**

Seven-year-old female child was taken to tertiary care center only after one year of onset of symptoms, that included, on and off pain over the knee, limping and restricted range of movements of right knee. On examination she had supra patellar fullness, lateral joint line tenderness with painful range of movements from 0-90 degrees with a positive mcmurrays test. Diagnosis was confirmed with an MRI that showed discoid lateral meniscus, with a tear over the anterior horn with small cysts around it.

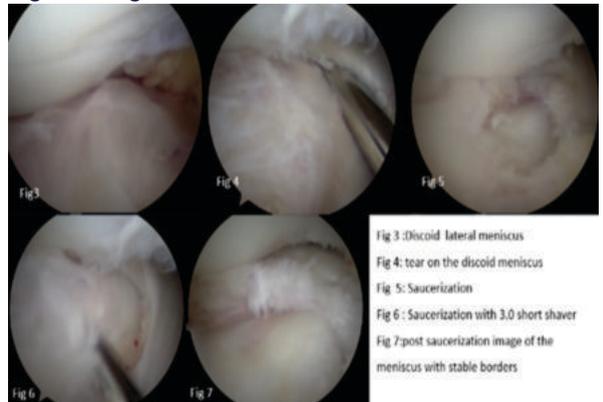
Pre-operative work up was essential in this case as she was 7 years with body weight 34 KG. As the knee size was much smaller than adult knee the regular arthroscopic instrumentations could cause more risk. Hence meticulous planning was done with an array of arthroscopic trocars, scopes, and shavers of varying sizes, meniscal repairing devices were kept as back up.



**Figure 1: 30 degrees angled 3.0mm scope**



**Figure 2 long and short 3mm shaver blades**



Diagnostic scopy was done initially with 30 degrees angled scope with 3.0mm diameter showed discoid lateral meniscus predominantly involving the posterior horn and posterior one third of body.

Careful saucerization was done with the help of short 3mm shaver blade that aided to regain the anatomy of a normal meniscus. Then, the residual meniscus was assessed and was found to be stable. After the surgery the patient was mobilized on the same day with full weight bearing. On later follow up she was found to have painless knee with 0-160 degree range of movements

**DISCUSSION**

Watanabe et al<sup>4</sup> classified the discoid menisci as complete, incomplete, and Wrisberg types, depending on the presence or absence of a normal posterior attachment and the degree of tibial plateau coverage. Discoid menisci are prone to tearing secondary to increased thickness, poor tissue quality, and instability<sup>5</sup>. The magnitude of hypermobility of an abnormal meniscus is related to the presence or absence of the tibial attachments (most commonly the posterior) and the meniscolfemoral ligaments. Mobility may also be altered by injuries, such as a tear in the meniscus or posterior capsular

separation<sup>6</sup>

Traditionally, the treatment of choice for symptomatic stable or unstable discoid lateral meniscus was open total meniscectomy. The residual meniscal tissue that had been left after partial meniscectomy was considered abnormal and was, therefore, supposed to be resected as well.<sup>7</sup> Modern surgical techniques have changed the old perspectives and saucerization of a discoid meniscus with a regular peripheral attachment is a standard surgical procedure now. But many a times due to lack of proper surgical instruments or due to less surgical expertise might lead to iatrogenic injuries warranting a partial meniscectomy.

In addition, removing a greater amount of meniscus has been associated with increased contact pressure on the cartilage and thus an increased risk of cartilage degeneration<sup>8</sup>. Many authors have recommended that at least 6 mm to 8 mm from the periphery should remain<sup>9</sup> however, larger meniscal remnants after saucerization have been associated with increased re-tear rates<sup>10</sup>. A complication unique to discoid meniscus surgery is osteochondritis dissecans (OCD) of the lateral femoral condyle, which can occur after total or partial meniscectomy of the discoid lateral meniscus. Repeated impaction of the immature chondral structure after resection of the discoid meniscus might predispose to the development of OCD in the lateral femoral condyle.<sup>11</sup> Juvenile osteochondritis dissecans of the lateral femoral condyle after lateral discoid meniscal surgery. Klingele et al. reported that 28.1% of arthroscopically evaluated discoid lateral menisci had peripheral rim instability<sup>12</sup>. All these evidences suggest a better management of paediatric discoid meniscal tears for better outcome with novel advanced instrumentation and techniques

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