

Symptomatic bilateral talonavicular coalition: A case report

Synostose talonaviculaire bilatérale symptomatique : A propos d'un cas

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ABSTRACT

Introduction: Talonavicular coalition (TC) is a rare cause of foot pain, less frequent than talocalcaneal or calcaneonavicular coalitions. Symptomatic coalitions can significantly impact a patient's mobility and quality of life.

Observation: We presented the case of a 14-year-old boy with bilateral TCs presenting with medial foot pain. Surgical resection of the distal navicular coalition and tibialis posterior repositioning were performed. At 12-month follow-up, the patient reported complete resolution of pain.

Conclusion: This case highlights the importance of considering TC in the differential diagnosis of medial foot pain in adolescents. Surgical intervention can provide effective and long-lasting pain relief in these patients.

Key words: Foot surgery, Joints, Tarsal Bones, Tarsal Coalition.

RÉSUMÉ

Introduction: La synostose talo-naviculaire (STN) est une cause rare de douleur au pied, moins fréquente que les synostoses talo-calcanéennes ou calcanéo-naviculaires. Les synostoses symptomatiques peuvent impacter significativement la mobilité et la qualité de vie du patient.

Observation: Nous avons présenté le cas d'un garçon de 14 ans présentant des STNs bilatérales associées à une douleur au niveau médial du pied. Une résection chirurgicale de la synostose naviculaire distale et un repositionnement du muscle tibial postérieur ont été réalisés. Douze mois après l'intervention, le patient a rapporté une disparition complète de la douleur.

Conclusion: Ce cas souligne l'importance de considérer la STN dans le diagnostic différentiel des douleurs médiales du pied chez l'adolescent. L'intervention chirurgicale peut apporter un soulagement efficace et durable de la douleur chez ces patients.

Mots clés: Articulations, Chirurgie du pied, Coalition du tarse, Os du tarse.

INTRODUCTION

Talonavicular coalition (TC) is a rare form of tarsal fusion, accounting for a small percentage of all tarsal coalitions [1]. It is less frequently observed than talocalcaneal or calcaneonavicular coalitions [2].

While often asymptomatic, TC can significantly impact a patient's quality of life by causing persistent pain, stiffness, and limitations in physical activity, particularly during weight-bearing or high-impact activities [3]. TC may be inherited in an autosomal dominant or recessive pattern [4].

This case report described the presentation, management, and outcome of a 14-year-old boy with symptomatic bilateral TCs.

PATIENT INFORMATION

A 14-year-old male presented with persistent, bilateral foot pain of four years' duration, exacerbated by sports activities, particularly soccer, affecting both his school and recreational involvement. This pain was partially relieved by medical treatment, but custom orthotics, used since the age of 10, provided minimal benefit. He

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had no other significant medical history, and there was no family history of tarsal coalitions. The patient's condition significantly impacted his daily activities, including withdrawal from sports, difficulty with routine tasks, and reduced social interaction due to pain exacerbated by walking or prolonged standing.

Clinical findings

Physical examination revealed mild pes planus (flat feet) with palpable, painful protuberances along the medial border of both feet (Figure 1). Ankle and subtalar joint range of motion was full and pain-free.

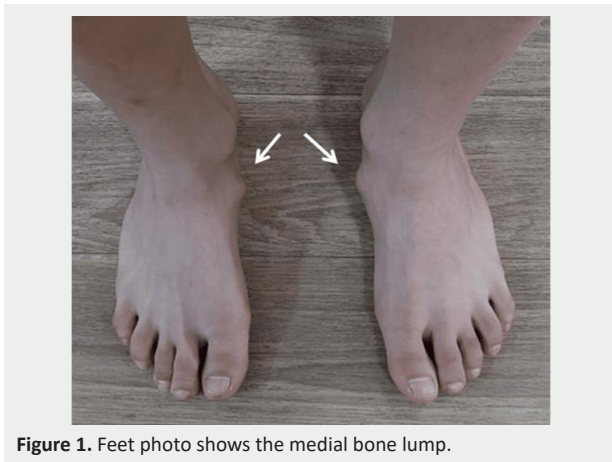


Figure 1. Feet photo shows the medial bone lump.

Timeline of current episode

The patient initially presented with a 4-year history of foot pain related to school and leisure sports activities, particularly soccer. At age 10, he was treated with custom orthotics, which provided minimal relief. On examination, mild pes planus and medial foot protuberances were noted. Radiographs revealed bilateral talonavicular fusion. Due to persistent pain and functional limitations, surgical intervention was deemed necessary. Resection of the distal part of the talonavicular coalition and reinsertion of the posterior tibialis tendon were performed. Post-operatively, the patient was immobilized in a cast for four weeks. At the 3-month follow-up, the patient reported complete pain relief and full ankle range of motion. At the latest follow-up, the patient expressed satisfaction and had returned to sports (Table 1).

Diagnostic assessment

Weight-bearing radiographs revealed bilateral talonavicular fusion (Figure 2). Other imaging modalities, such as computed tomography scan, were not used to minimize radiation exposure in this pediatric patient. Genetic evaluation of the patient's family revealed no other members with tarsal coalitions.

Diagnosis

The final diagnosis was symptomatic bilateral talonavicular coalition.

Table 1. Timeline of events and interventions.

Patient age (Years)	Event/Intervention	Details
10	Onset of foot pain and start of conservative treatment	The patient began experiencing foot pain related to sports activities and started using custom orthotics; the pain was partially relieved by medical treatment.
10-14	Continued foot pain despite conservative treatment	The patient continued to experience medial foot pain, which was exacerbated by sports activities. Custom orthotics did not provide significant relief.
14	Presentation with a 4-year history of medial foot pain	The patient presented with a 4-year history of medial foot pain following sports activities, mild pes planus (flat feet), and painful protuberances over the medial border of each foot ¹ .
14	Diagnosis of bilateral talonavicular fusion	Weight-bearing radiographs revealed bilateral talonavicular fusion ² .
14	Surgical Intervention	Resection of the medial bone lump, including the distal part of the coalition, was performed, along with reinsertion of the posterior tibialis tendon ²³ .
14	Post-Operative Care	The patient was placed in a cast for four weeks after surgery ³ .
14 (3 Months Post-Surgery)	Follow-up	The patient reported complete pain relief and had regained full ankle range of motion ³ .
15 (12 Months Post-Surgery)	Follow-up	The patient reported continued satisfaction with the outcome and had resumed his sports activities

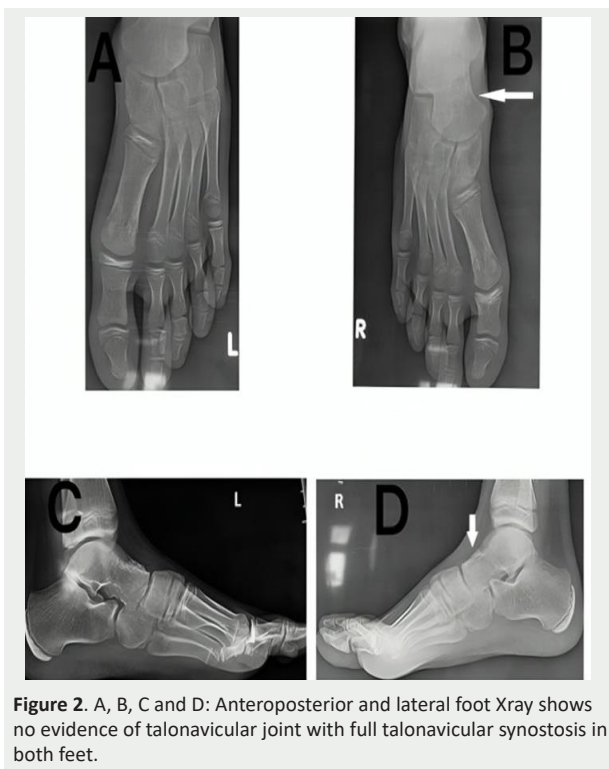


Figure 2. A, B, C and D: Anteroposterior and lateral foot Xray shows no evidence of talonavicular joint with full talonavicular synostosis in both feet.

Therapeutic interventions

Surgical resection of the distal part of the bilateral talonavicular coalitions and reinsertion of the posterior tibialis tendons were performed (Figure 3).

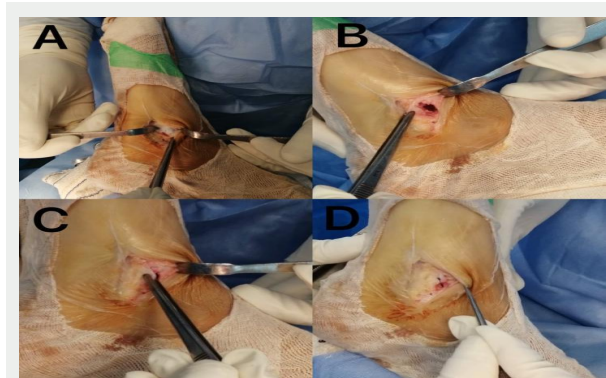


Figure 3. A- B: Resection of the medial bone lump corresponding to navicular distal part.

C-D: Reposition of the tibialis posterior tendon.

Post-operatively, the patient was immobilized in a cast for four weeks.

Follow-up and outcome of interventions

At the 3-month follow-up appointment, the patient reported complete pain relief and demonstrated full ankle range of motion. At the 12-month follow-up, he expressed satisfaction with the outcome and had returned to his previous sporting activities. Long-term follow-up is planned, including annual clinical evaluations with physical examinations, patient-reported outcome measures, and radiographic imaging. The patient has adhered to the follow-up plan.

DISCUSSION

This case report highlighted the rare presentation of symptomatic bilateral TC in an adolescent, emphasizing the importance of considering TC in the differential diagnosis of chronic medial foot pain, even in the absence of a family history.

TC was first described in the medical literature by Anderson in 1879 [5]. Since then, various studies and case reports have been published, shedding light on this rare condition [6,7]. Although most cases of TC are asymptomatic [3, 6], our patient presented with bilateral foot pain, highlighting the variability in clinical presentation.

The etiology of TC is not fully understood, but it is thought to involve a failure of segmentation of the primitive mesenchyme during fetal development [7-10]. In this case, there was no family history of TCs or other associated orthopedic anomalies.

The physical examination revealed normal subtalar joint motion, suggesting that the navicular-cuneiform joints had compensated for the lack of movement at the fused talonavicular joint. This adaptation may have contributed

to the development of symptoms, as increased stress could be placed on the adjacent joints.

Treatment for tarsal coalitions ranges from conservative to surgical approaches. Conservative management is typically the first line of treatment, with surgery reserved for cases where conservative measures fail to provide adequate relief. [11,12].

Macera et al. [11] reported a case where conservative treatment with orthotics yielded positive results at one-year follow-up. While various surgical techniques with long-term outcomes have been described for talocalcaneal coalitions, similar data for talonavicular coalitions are lacking. Miguez et al. [13] treated a symptomatic bilateral talonavicular coalition with calcaneocuboid joint distraction arthrodesis to relieve pain and correct foot alignment. Ellington et al. [14] compared supramalleolar osteotomy to tibiotalar arthrodesis in patients with ball-and-socket ankle joints and concomitant talonavicular coalitions.

Surgical resection of the bony prominence, combined with reattachment of the posterior tibialis tendon, proved effective in alleviating the patient's pain and restoring function. While short-term outcomes are positive, long-term follow-up data on surgical management of TCs is limited. The patient was informed of the possibility of symptom recurrence and the potential need for further interventions such as arthrodesis or osteotomy in the future.

CONCLUSION

TC, although rare, should be considered in the differential diagnosis of patients presenting with chronic foot pain, particularly when bilateral. While conservative treatment may be sufficient for some, surgical intervention can be an effective option for those with persistent symptoms, as demonstrated in this case.

Clinical message

This case report highlights a rare presentation of symptomatic bilateral TC in a pediatric patient. The successful surgical management emphasizes the importance of considering TC when evaluating adolescents with chronic foot pain, even in the absence of a family history.

Patient perspective

"I don't feel any pain now and I'm so happy to be back playing soccer like I used to."

Consent

Written informed consent for the publication of the patient's clinical details and clinical images was obtained from the patient and his parents.

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