

# A Rare Non Syndromic Case Of Metatarsal Coalition

**Dr. Surbhi Kapoor**  
Senior resident  
Gmch chandigarh

**Dr. Chander Rashmi Gupta**  
Consultant  
Distric Hospital, samba

**Dr. Kanav Gupta**  
Junior Resident , orthopaedics  
Ascoms, Jammu

**Dr. Rajesh Kumar Gupta**  
HOD, orthopaedics  
Ascoms, Jammu

**Dr. Aditya Gupta**  
Senior resident, orthopedics  
Gmc Jammu

## Abstract

Coalition or synostosis of the foot is a relatively uncommon abnormality. Some cases of synostosis of the foot, primarily involving the midfoot and hindfoot, have been reported. However, intermetatarsal coalition is extremely rare, with only a small number of cases reported in literature. We report a case of a unilateral, congenital metatarsal coalition between the fourth and fifth metatarsal bones in a 31 year old female

## Keywords

Coalition, Distal metatarsal

## Introduction

Congenital foot abnormalities such as syndactyly, polydactyly, and brachymetatarsia are common foot deformities seen by the orthopaedic surgeons. Metatarsal coalition remains extremely rare <sup>[1-6]</sup>, with our case being the third documented case of 4th and 5th distal metatarsal coalition in the literature. Coalition, or synostosis, occurs when two adjacent bones are abnormally bridged by an osseous bar. Coalition of the foot is an uncommon abnormality and usually involves the hind-foot and mid-foot. Tarsal coalition is the commonest, majority of which affects the calcaneonavicular and talocalcaneal joints <sup>[1]</sup>.

## Case Report

31 year old female patient presented with pain and swelling left foot following trauma. On examination there was swelling and ecchymosis of the dorsum and lateral aspect of foot. There was some broadening of the midfoot. There was no callosity. There was also tenderness over the dorsolateral aspect of midfoot. There was no crepitus or abnormal mobility. Patient was moving the toes normally. Ankle, subtalar and metatarsophalangeal motion was normal. There was no previous history of any trauma. No dysfunction because of foot in the past. Other foot was normal. No relevant family history. X-ray of the foot showed synostosis between 4<sup>th</sup> and 5<sup>th</sup> metatarsal. The 5<sup>th</sup> metatarsal looks deformed and broadened

Treatment: The patient was given conservative treatment for her soft tissue injury and advised to report anytime later as and when symptoms relating to coalition occurs and then she may require excision of the bony bar if symptomatic.



**Fig. 1-** Clinical picture of both feet



**Fig. 2-** Clinical picture of left foot showing AP (a) and Lateral Views (b)



**Fig. 2-** X-ray of left foot showing AP (a) and Lateral Views (b)

## Discussion

Metatarsal coalition, or synostosis, is uncommon relative to tarsal coalition. There are several ways to classify coalition. Perman and Wertheimer [7] classified coalition as congenital or acquired. Most reported cases are congenital coalition between the bases of fourth and fifth [1-3]; or first and second metatarsal bones [4,5]. With only two other case in the literature [6], our case adds to the literature the third case of 4th and 5th congenital distal metatarsal coalition.

Metatarsal synostosis occurs as one of the components of some congenital malformation syndromes: Pfeiffer syndrome, Apert syndrome, and Townes-Brocks syndrome [8-10]. The responsible genes and mode of inheritance have been identified in these syndromes, but isolated cases are rare, and very few cases have been reported; thus, their epidemiology and pathogenesis are unknown. A case of non-syndromic distal metatarsal synostosis of the fourth and fifth toe was described in 2014 by Aspros et al. [6], There is another case of multiple metatarsal synostoses reported in literature [11]. The genetics of metatarsal coalition, however, is not known. Treatment of metatarsal coalition may be conservative or surgical. The goal is to reestablish normal metatarsal relationship with restoration of normal weight bearing dynamics. Surgery may be warranted if there is significant pain, cosmetic deformity, or trouble with shoe wear. Typical surgery involves excision of the coalition

In conclusion, we present an unusual non syndromic case of osseous coalition between fourth and fifth metatarsal bones . While the coalition itself is not painful or symptomatic, patient may require surgical treatment in case of symptoms presumably due to altered biomechanics resulting from this coalition.

There is no conflict of interest

## References

1. Kashuk K.B., Hanft J.R., Schabler J.A., Wolosky B. An unusual metatarsal coalition. J. Am. Podiatr. Med. Assoc. 1991;81(7):384–388.
2. Boccio J.R., Dockery G.L., LeBaron S. Congenital metatarsal synostosis. J. Foot Surg. 1984;23(1):41–45.
3. Keenleyside A., Mann R.W. A rare form of metatarsal synostosis. AJR Am. J. Roentgenol. 1991;157(3):648.
4. Yang C., Gould E.S., Mason M. Metatarsal coalition
5. Novak E.J., Elzik M., Diab M. Symptomatic coalition between the first and second metatarsals in a Child. Orthopedics. 2008;31:1241.
6. Aspros D., Ananda-Rajan E., Jnr Z.K., Rajan R. Distal metatarsal synostosis: a case report. Foot (Edinb.) 2014;24(September 3):153–156.
7. Perman M.D., Wertheimer S.J. Tarsal coalitions. J. Foot Surg. 1986;25:58.
8. Pfeiffer R.A., Kapferer L. Sensorineural deafness, hypospadias, and synostosis of metacarpals and metatarsals 4 and 5: a previously apparently undescribed MCA/MR syndrome. Am. J. Med. Genet. 1988;31(September (1)):5–10.
9. Powells C., Michaelis R. Townes–Brock syndrome. J. Med. Genet. 1999;36:89–93
10. Blauth W., Von Törne O. Apert's foot (in acrocephalo-syndactyly) Z Orthop. Ihre Grenzgeb. 1978;116(February (1)):1–6.

11. Ai Yokoyama, Norio Fukuda, Hirotaka Asato: Congenital Multiple Metatarsal Synostoses with Proximal Phalangeal Deformities of the Foot. [Arch Plast Surg](#). 2016 Nov; 43(6): 619–621.

---