Bilateral Congenital Diastasis of the Inferior Tibiofibular Joint

DAVUT KESKİN
Atatürk University, Faculty of Medicine, Department of Orthopedics and Trauma, Erzurum, Turkey

KESKİN, D. Bilateral Congenital Diastasis of the Inferior Tibiofibular Joint. Tohoku J. Exp. Med., 2002, 197 (4), 239-242 — Bilateral congenital inferior tibiofibular diastasis is an extremely rare anomaly of unknown etiology. A few cases have been reported previously. The author presents a case in which bilateral tibiofibulotalar arthrodesis was performed. —— tibiofibular diastasis; tibial hypoplasia; congenital anomaly
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Congenital diastasis of the inferior tibiofibular joint is an extremely rare anomaly. The first report was given by Tuli and Varma (1972). A few cases with bilateral involvement have been reported previously (D’Ambrosio 1979; Garbarino et al. 1985). In this study, the author reports on a case who had bilateral congenital inferior tibiofibular diastasis.

CASE REPORT

An 10-year-old boy was referred to our clinic for deformities of both lower limbs. He had not been treated previously. There was no familial history of congenital abnormalities or drug ingestion by the mother during pregnancy.

On examination, the boy stood and walked with difficulty, because of bilateral severe equinovarus deformity and internal torsion of the legs. In addition, there were leg shortening, shortening and medial deviation of bilateral first and second toes (Fig. 1). Radiographs

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Address for reprints: Dr. Davut Keskin, Atatürk Üniversitesi Lojmanları, 45. Blok, No. 4, 25240 Erzurum, Turkey.
e-mail: keskind@atauni.edu.tr

Fig. 1. Clinical aspect before correction.
of both lower limbs showed hypoplasia of the lateral distal tibia and anteriorly situated hypertrophic lateral malleolus. There was aplasia of the ceiling of the mortise, and talus was inserted between the tibia and fibula (Figs. 2 and 3). The first and second metatarsals were small and thin. Aplasia of the navicular bone and third cuneiform, and hypoplasia of the other cuneiforms were present. No other associated anomalies were found.

At the first operation, the right ankle and the lower half of the right tibia and fibula were exposed through a anterior incision. After interosseous tibio-fibular soft tissue releasing, the distal ends of the tibia and fibula were mobilized, brought together in both the coronal and sagittal planes as far as possible, and a proximal partial takedown was performed. Two screws were inserted to transfix the fibula to tibia. The ankle arthrodesis was then performed. The wound was closed and the foot was held plantigrade in an above-knee plaster cast. The plaster immobilization was continued for 4 months. At the fourth postoperative month, fusion was achieved, and the same interventions were performed for left side.

At the latest follow-up (8 months after first operation), both tibiofibulotalar fusions were
obtained (Fig. 4), and the feet were plantigrade and painless. The patient could walk with easily, however, there was 15 degrees of internal torsion of both legs (Fig. 5).

**DISCUSSION**

The etiology of congenital inferior tibiofibular diastasis is unknown. Neither familial history of congenital abnormalities nor any teratogenic agents could be ascertained in our patient. Some authors suggested that this condition is a variation of hypoplasia of the tibia with short tibia and intact fibula (Bose 1976; Jones et al. 1978). But, according to Onimus et al. (1990) there are two types of congenital inferior tibiofibular diastasis as tibial hypoplasia and lateral distal tibial dysplasia. In lateral distal tibial dysplasia, the tibia and fibula are of similar length; the tibia is tapered, the diastasis occurs horizontally with widening of the mortise, and medial torsion of the leg skeleton is predominant and induces foot adduction. Tarsal anomalies and medial ray aplasia are often present. I share the concept of Onimus et al. (1990) because our patient had all of the presenting characteristics of lateral distal tibial dysplasia type.

Several treatments have been proposed, including ankle joint reconstruction, posteromedial release, Syme amputation, double upper fibular and inferior tibial derotation.
ostotomies, and bone lengthening (Tuli and Varma 1972; Garbarino et al. 1985; Onimus et al. 1990). Posteromedial release does not always correct varus deformity because varus results from leg skeleton deformity, and Syme amputation should be considered for those cases of severe tibial shortening (Garbarino et al. 1985; Onimus et al. 1990). Leg inequality is not usually a problem in bilateral cases. Onimus et al. (1990) suggested that ankle joint reconstructive procedures are difficult and hazardous and perhaps unnecessary because the joint is spontaneously stable. Also, it is impossible to reconstruct the ankle joint in older children because of migrated talus to proximal and lateral distal tibial dysplasia. But, if no attempt were made to stabilize inferior tibiofibular joint, the talus would migrate proximally and the ankle joint would be unstable during the period of development because of lack of normal support from the lower end of the tibia. Hence, after interosseous tibiofibular soft tissue releasing and lateralization of the fibula, I performed a partial takedown and a tibiofibulotalar arthrodesis. The patient had plantigrade feet, and could walk with easily. Although it causes the leg shortening and motionless ankle joint, this method can perform in older children with bilateral congenital inferior tibiofibular diastasis.

References


