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Congenital dislocation of shin bones: treatment tactics

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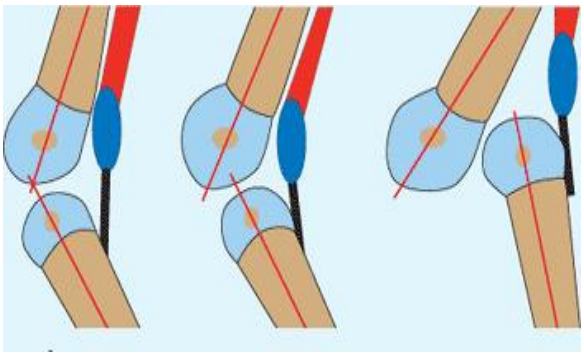
Annotation. Purpose is to analyze the treatment of congenital dislocation of shin splints
Keywords:

Introduction: Congenital dislocation of the shin bones is a very rare disease. The incidence of this disease in newborns is one in 100,000 newborns. This disease can occur individually or combined with hereditary diseases such as connective tissue dysplasia, Elersa-Danlo, Larsen, Marfan joint space. This disease is often combined with other congenital anomalies of the locomotor system. These are diseases such as hip dysplasia, congenital scoliosis, and congenital vertical scoliosis.

Purpose: to analyze the treatment of congenital dislocation of shin splints.

Inspection method and materials: During the years 2016-2023, we observed 14 patients (24 joints) with congenital shin splints. Among them, 4 patients are boys and 10 patients are girls. Age from 1 day to 4 years. 10 patients had bilateral (71.4%), 4 patients had unilateral (28.6%) shin splints. 1 patient had a right-sided (25%), and 3 patients had a left-sided (75%) shin splint.
According to Curtis and Fisher (1969) classification:

Figure 1



1. Recurvation - the articular surface of the tibia moves slightly forward in relation to the epiphysis of the femur, and the epiphysis of the femur moves upward, towards the articular surface of the knee cap.
2. Prolapse - the back edge of the articular surface on the tibia rests on the front edge of the articular surface on the femur.
3. Dislocation - movement of the tibia is observed forward and upward.

An early and constant clinical sign of congenital pathology of the knee joint is the restriction of excessive knee joint movement and pain during movement. The knee joint has a step-like shape. Due to the presence of over-extension of the knee joint, the flexion movement is severely limited. When palpating the subclavian branch of the knee joint, it is determined that the bulges of the femur are united with the tibia. The joint surfaces are deepened, the skin of this joint is stretched, several skin folds are identified on the front surface of the joint. The shin does not allow the knee joint to bend. Movement in the joint is sharply limited to 15-20 degrees.
All of the above symptoms are observed at the same time and in the same area. The main symptom in children with knee dislocation is forward instability of the knee joint, loosening of the lateral ligaments of the knee joint in the position of dislocation.
In 3 patients, the condition of prolapse or premature prolapse was observed, while in 5 patients, hypoplasia of the small tibia was detected. In 3 of them, as a result of hypoplasia of the lower leg bone, it was observed that the lower leg joint protruded outward.

Treatment of congenital shin splints

Treatment of newborns begins with the diagnosis. The quadriceps muscle is flexed passively according to its contracture, brought to a flexion position, and the tibia is placed in place.
If the bending position is brought to 90°, it is fixed in this position and corrected for 2-4 weeks. If the bending position is from 30° to 90°, the plaster is removed every week and corrected in a plaster bandage for 4 weeks until it exceeds 90°.

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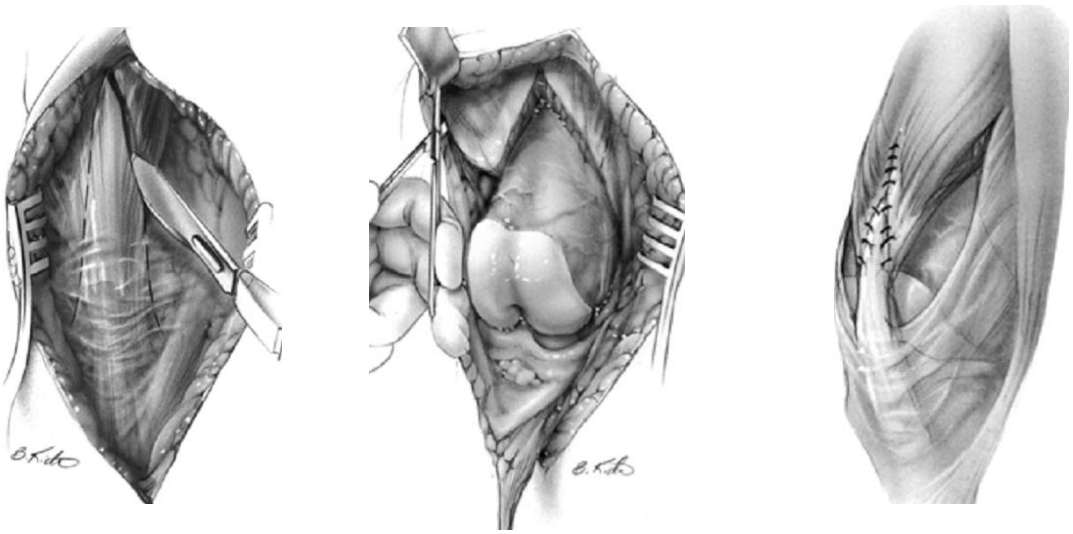
Figure 2

If the knee flexion is less than 90° even after plaster cast, operative treatment is recommended. Operative treatment is V-Y-plasty of the quadriceps muscle together with arthrotomy.
Figure 1



If it is not corrected by this procedure, femur shortening osteotomy is performed. This operation is performed taking into account the complication of quadriceps scarring. After the operation, a 6-week plaster cast is placed on the knee joint in a bent position at an angle of 70-85 degrees. After removing the plaster bandage, the patient is given exercises to strengthen the quadriceps muscle and is allowed to walk on the orthosis. The orthosis is worn at night and during the day. If the patient has other diseases of the locomotor system, first the dislocation of the knee joint is treated, and then other pathologies are treated.

Results. 24 dislocations of the knee joints were detected, and 13 of them were fixed at the time of dislocation as soon as the diagnosis was made, and fixed for 2 weeks in the position of bending more than 90°. 6 knee flexion reached 30°-90° and 100% result was achieved after 4 weeks of treatment in a cast. 5 patients of the 2nd group (30°-90°) with the diagnosis of congenital prolapse of the knee cap underwent V-Y-plasty and arthrotomy surgery. The average age of patients who underwent surgery is 24 months (8-60 months).
The average follow-up period is up to 3 years (on average from 2 to 6 years).
At the end of the treatment period, 16 knee joints of the observed patients had 100% recovery of motion and the same condition as the healthy knee joint. Knee flexion is 120° in 8 patients treated with knee dislocation. (90% recovery compared to a healthy knee joint was achieved)

Conclusion. Early diagnosis of the disease (up to 1 day after birth in the maternity hospital) plays a key role in the treatment of the disease. Treatment of the disease from the first hours increases the effectiveness of the

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treatment and shortens the treatment time. Failure to treat congenital knee dislocation in children can lead to limited range of motion in the knee joint.

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