OPZ250 Mesleki Yabancı Dil I

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Terminology on Orthoses

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Clubfoot

Prof. Dr.Serap Alsancak

Doç. Dr. Senem Güner

Dr. Öğr. Gör. Enver Güven

Öğr. Gör. Ali Reza Vasefmia

Terminology on Orthoses

Clubfoot

Heakyung Kim MD

Description

Clubfoot is a congenital deformity of the foot, which includes equinus, varus, adduction, rotational, and cavus deformities.

Etiology/Types

■ _Multifactorial; may be associated with a specific (eg, Edward's syndrome, teratogenic agents such as sodium aminopterin, congenital talipes equinovarus [CTEV]), or generalized disorder (eg, growth arrest, arthrogryposis, muscular dystrophies).

■ _Majority are idiopathic.

■ _Multiple classification schemes exist

• Extrinsic vs. intrinsic causes (intrauterine compression vs anatomic deformities)

• Postural/positional vs. fixed/rigid

• Correctable vs resistant (based on the basis of therapeutic modality)

• Other formal schemes include Pirani, Goldner, Di Miglio, Hospital for Joint Diseases (HJD), and Walker classifications.

Epidemiology

- _Occurs in approximately 1 out of 1,000 births.
- _30–50% of cases present with bilateral involvement.
- _There is a 2:1 male-to-female ratio.

Pathogenesis

- _Intrauterine neurogenic events (stroke, spina bifida) leading to altered innervation patterns in posteromedial and peroneal muscle groups
- _Arrest of fetal development at fibular stage
- _Retracting fibrosis due to increased presence of fibrous tissue in muscle/ligaments.
- _Anomalous tendon insertions

Risk Factors

- _Familial: 2% incidence in first-degree relatives
- _CTEV can be seen in syndromes involving chromosomal deletion.

Clinical Features

- _Heel inverted (varus) and internally rotated.
- _Forefoot inverted and adducted, with medial foot concave, lateral foot convex, foot inverted, and deep medial and posterior creases in severe deformities
- _Plantar flexion with inability to dorsiflex. Equinus with tight heel cord.
- _Tibial torsion may be present.

Natural History

- _Present at birth 14

- _Worsens over time if untreated
- _Treated conservatively with serial manipulation/ casting.
- _More difficult cases (eg, teratological etiology) may require surgical release

Diagnosis

Differential diagnosis

■ _Metatarsus adductus

History

■ _Seek a detailed family history of clubfoot or neuromuscular disorders

Exam

■ _Examine feet with child prone, with plantar aspect visible, as well as supine, to evaluate internal rotation and varus.

■ _Ankle seen in equinus, foot supinated (varus), and adducted

■ _Dorsiflexion beyond 90 degrees not possible

■ _Cavus (high arch) deformity

• Navicular and cuboid displaced medially

• Talar neck easily palpable

• Medial plantar soft tissue contractions present (triceps surae, flexor digitorum longus, flexor hallucis longus)

• ■ _Heel small and soft

• ■ _Tibia may exhibit internal torsion

• ■ _If child can stand, test for: plantigrade foot, foot/ankle position, and weight bearing heel

Pitfalls

- _Starting treatment late
- _Overaggressive surgery

Red Flags

- _Don’t use force to correct equinus, as this may break the foot and result in rockerbottom foot.

Treatment

Medical

- _N/A

Modalities

- _Stretching/manipulation followed by serial casting, most often by Ponseti method. The Ponseti method is a manipulative technique that corrects congenital clubfoot by gradually rotating the foot around the head of the talus over a period of weeks during cast correction. It is recommended that this modality be started soon after birth (7 to 10 days)
- _Order of correction: forefoot adduction, forefoot supination, then equinus
- _Splints/braces (i.e., ankle-foot orthoses, Denis-Browne Bar, a corrective device in which straight last boots are locked in position by a metal bar, which promotes ankle dorsiflexion and relative foot external rotation.)

Injection

■ _Botulinum toxin applied to muscular contractures in conjunction with above modalities.

Surgical

■ _Achilles tenotomy

■ _Anterior tibial tendon transfer if dynamic supination deformity

Prognosis

■ _Uncorrected prognosis is poor, with sequelae including:

• Aesthetic impairments

• Secondary bone changes

• Breakdown, ulceration, and infection of inadequately keratinized skin not meant to be weight bearing

■ _With treatment, prognosis is good to excellent; with Ponseti method correction, 90–95% success rates have been reported.

■ _A discrepancy in range of motion and muscularity may persist.

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■ _Pain may occur at site of deformity later in life necessitating shoe modifications or additional corrective surgery