Young Person Flat Foot Correction

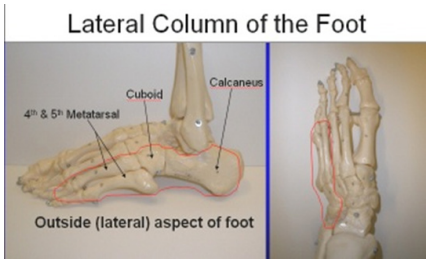
Lateral Column Lengthening (+/- medializing calcaneal osteotomy and medial column (cotton) osteotomy) with soft tissue balancing (peroneal and calf lengthening, tibialis posterior reefing)

Indications

A lateral column lengthening procedure is indicated for patients with flatfoot deformity, where the front part of the foot is splayed out to the side. This procedure is often combined with a medializing calcaneal osteotomy and/or a medial column correction as a technique for adjusting a flat foot. The lateral column lengthening procedure provides a correction in patients with flatfoot foot deformities, however, though it is a procedure with clear advantages, there are also potential disadvantages. The foot shape is improved but it is rarely the same as the average foot.

Procedure

The lateral column is made up of the calcaneus, the cuboid, and the fourth and fifth metatarsals (Figure 1). Therefore, the lateral column lengthening procedure involves lengthening this region. There are two general ways of doing a lateral column lengthening, both of which commonly involve taking a bone graft and inserting it in the lateral column. This graft is usually between 6-12mm in length, and is secured with wire, screws, staples, or a plate. The bone graft is a trapezoidal bone piece and can be either taken from the top aspect of the pelvis (iliac crest) or, in some instances, from a bone bank.



One way of performing this procedure is by cutting the bone (osteotomy) through the front part of the calcaneus. An osteotomy (bone cut) of the calcaneus is performed near the calcaneo-cuboid joint, which is then spread about 7-10 mm so that the bone graft can be inserted, in order to lengthen the column. Another way of doing this procedure is done through the actual calcaneo-cuboid joint itself. The bone graft is inserted in the joint, which serves as a joint fusion while also lengthening the lateral column. This is more commonly used in young children with club foot. In younger patients the procedure is normally performed using wires which are removed at about 8-10 weeks after the operation. In older patients screws and plates, which stay in, are used to secure the osteotomies. A lateral column lengthening procedure is a powerful procedure, since it can dramatically change the shape of the foot. The advantages of this procedure include the ability to take a pronounced flatfoot deformity and turn it into a better looking, but often not normal looking foot. However, the disadvantages include the potential of creating a stiffer foot; possibly overcorrecting the foot (which may lead to more symptoms); and a higher rate of specific complications, such as painful hardware, sural nerve irritation, and nonunion.

Recovery

0 to 6-10 weeks
For the first 6-10 weeks, the patient is either non-weight bearing or limited weight bearing through the heel, until the bone graft has healed.

6-10 weeks to 12-16 weeks
For the next 4-6 weeks (assuming the bone graft has healed), the patient can weight bear as tolerated in a cast boot. At the 10-16 week mark, the patient can then transition into a shoe. About 75% of the recovery occurs within the first 5-6 months. However, full recovery can

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take up to 18-24 months. 16-17/20 patients are likely to have a good long term result. Some patients have a fair improvement while a few will have complications and be worse off after surgery.

Potential General Complications

- Wound Healing Problem
- Infection
- Deep Vein Thrombosis (DVT)
- Pulmonary Embolism (PE)
- Asymmetric Gait

Potential Specific Complications

Sural Nerve Injury: Since the sural nerve is located around the region where the surgery is performed, it may get injured, which may cause numbness, irritation, and/or pain.

Nonunion: The bone graft placed to expand the lateral column may not heal. This could necessitate further surgery. It seems that the rate of non-union may be higher when the bone graft is placed in the calcaneal-cuboid joint, compared to through the calcaneus itself.

Painful Hardware: The screws/wires used to secure the bone graft may become painful, requiring removal. This occurs in about 15-20% of patients.

Over Correction/Under Correction: Determining the extent of correction required can be challenging for the surgeon. If the foot ends up in less than an ideal position, the patient may end up with more symptoms.

COVID-19 infection increases the risk of complications and we recommend you read the separate leaflet about this. If you are in one of the vulnerable groups you should think very carefully about proceeding with surgery unless it is absolutely necessary

Chronic regional pain syndrome (CRPS)

Further information

www.ibji.com/services/foot-ankle/

http://orthoinfo.aaos.org/menus/foot.cfm