

Bollard plates, Piriform plates, and Non-osteotomy facial bone surgery. (Minimally invasive Orthognathic surgery)

Dr. Stelnicki is the first craniofacial surgeon in the state of Florida to offer non-osteotomy facial reconstruction. This is a unique procedure developed by Dr. DE Clerk in Europe that has only recently been approved by FDA for use in the United States. Dr. Stelnicki, and the team of orthodontists on the Joe DiMaggio Craniofacial team are first in the area to offer this unique type of minimally invasive jaw surgery to your child.

In addition, because of the unique nature of Dr. Stelnicki's practice, Dr. Stelnicki is the only craniofacial surgeon to use this technique for the treatment of cleft palate and craniofacial related jaw deformities. All other surgeons place these plates in children without craniofacial anomalies.

What are Bollard Plates and how do they work?

Bollard plates are specially designed titanium plates that adhere to the maxilla and mandible of the pre-pubescent child, that allow the orthodontist to control bone growth. This is unique because in the past, orthodontists have only been able to adjust tooth position, with minimal effect on the growing bone. When an large Skeletal Class 2 or Class 3 misalignment occurred, and the teeth didn't fit together, may jaw surgery called orthognathic surgery or jaw distraction osteogenesis, would be required to properly align the teeth and achieve facial balance. These types of surgeries are known as Le Fort operations, or mandibular sagittal split osteotomies, and they were done typically at skeletal maturity around age 16-18 years. This meant that kids with major cross bites and jaw deformities had to live throughout there teen-age years looking different to others. As any parent knows, teenage years can be the toughest times on kids. Adding the stress of a major jaw deformity to the mix only complicated matters. This new minimally invasive therapy offers a way to avoid all this. The devices, 2 of which are placed on the mandible and 2 of which are place on the maxilla, are surgically attached to the bone around age 11-12 years. This is the time when facial bone growth is about to take off, just prior to full-blown puberty (see figure). The plates are surgically implanted through minimally invasive incisions. A small corticotomy is also made in the bone to assist in the Le Fort type jaw advancement as well as

the mandibular movement. The surgery takes less than one hour. It is done under general anesthesia as an out patient procedure. The incisions are closed with dissolving sutures.

Post operatively, patients are kept on a liquid diet for a few days then a soft diet for a week. They can resume normal activity almost immediately. Ice can be applied to the face to minimize swelling. 6 weeks later, if the plates are solidly fixated to the bone, then the orthodontist can start to move the bone through the use of elastics that distract and pull the bone into the desired direction. This process takes a few years and is done in conjunction with standard orthodontics. The devices look similar to tooth born appliances so kids tolerate them well.

These devices can move jawbone between 4-8 mm and can normalize facial appearance without the risk of major jaw surgery. At the end of the Jaw movement, usually in the teenage years, the devices can be removed with a quick operation. We feel this is a major advancement for our patients with and without craniofacial anomalies.

Piriform plates:

The newest minimally invasive device to treat mid-face hypoplasia in children 8-10 years. Mid face hypoplasia or a dished in face can occur at any age. It is frequently seen in children with cleft lip and palate. Up to now, no treatment except reverse pull head gear, which corrects only a few mm of deformity, or maxillary distraction osteogenesis, which is a major bone cutting Le Fort 1 operation, were available to help children in this age group.

Piriform plates have changed all that. Now, like the patients receiving Bollard plates, patients in the 8-10 year range can achieve major facial advancement through a small operation.

The surgery is an outpatient operation done under general anesthesia. The surgery is typically less than one hour. During the operation, through 2 minimal incisions in the gum, 2 plates are placed on the bone along side the

nose, called the piriform aperture. The plates are held in place and the incisions closed with dissolving sutures.

What age is surgery performed?

Surgery is typically performed at age 5-10 years for piriform plates or with maxillary distraction osteogenesis. Bollard plates are placed between ages 10-14 years

What should be done before surgery?

A recent history and physical documenting good health is required one week or less before the surgery. A pre operative orthodontic assessment is needed. In most cases a panorex x-ray and a cephalogram are obtained. No eating or drinking after midnight, the night before the operation unless otherwise instructed.

How long is the surgery?

The surgery typically takes 1 hour per ear depending of the degree of severity

What type of anesthesia is used?

Typically this operation is performed under general anesthesia.

What type of postoperative care is needed?

- Liquid diet for 7 days then a soft diet
- No sports for 2 weeks
- May brush teeth after 7 days

Is there a lot of pain?

Most patients only need Tylenol or Motrin dosed according to their weight for pain management.

What complications can occur?

Complications following this operation are rare. However, like any surgery they can occur. The complications most commonly described are bleeding,

infection, hematoma, plate breaking or becoming dislodged from the bone. If any of these complications occur, bring them to the attention of your surgeon immediately.

When should we follow up?

You should see Dr. Stelnicki or his physician assistant 7-14 days after the initial operation. Additional follow-ups will be arranged at that time.

Will the sutures dissolve?

Yes

How do we clean?

Bathe and shower normally, rinse will mouth wash 3 times a day post op

Post Op Instructions

Post op there is the same diet as patient with the Bollard plates. 6 Weeks later, if the plates are stable, the orthodontist will attach the reverse pull headgear directly to the plate. This will perform a gentle Le Fort 1 distraction, bringing the upper jaw forward. This process will take several years. At the end, the plates will be removed and the child will hopefully have avoided a major jaw surgery.