

BroadcastMed | patel_cleft_lip_repair_final

This video will be a demonstration of a cleft lip repair Fisher subunit approach.

In this photo, there is a child born with a complete right cleft lip and palate.

On the left is the pre-operative view.

On the right is a six-month post-operative view after the repair has been performed.

Image A, again, shows the child with the right complete cleft lip and palate.

The goal of a Fisher subunit approach cleft lip repair is to create symmetry between the non-cleft and cleft side of the lip.

Image B reveals the child after we have intubated the child preparing him for his cleft lip repair.

A key component to this is that we keep the t-tube mid-line so that it does not distort the lip.

Image C reveals the cleft lip once we have marked with methylene blue the points necessary for the design of a subunit approach.

There are 25 points in order to create this repair.

Image D shows the child after the incision lines have been created off of the 25 points previously marked.

As you can see, there are triangles created within both the upper lip and the vermillion that enable the lip to be lengthened to create the symmetry needed on both non-cleft and cleft sides.

Once the incision has been created, we then inject the lip with local anesthesia and very precisely begin to make the incision.

This is the most meticulous portion of the procedure.

Here, we are incising the upper lip triangle that will enable the lip length to be longer in order for the symmetry to be created on both the non-cleft and cleft side.

As part of this incision, this is elevated in a submucosal plane. Here, we are now then incising into the vermillion.

And this is the vermillion triangle that is created, again, to increase length. Once this has been done, the lip is then elevated along the margin of the cleft in a submucosal plane.

This enables visualization of the deeper components.

We then elevate the lip along the pre-periosteal plane of the maxilla.

Next, the muscle then is separated from the lip along the lip skin as well as all along the buccal mucosa.

This isolates the muscle to allow for realignment.

Next, we then perform a primary rhinoplasty, separating the skin of the ala from the underlying cartilages.

This will allow for the skin to be shifted over the cartilages to create more symmetry and rounding shape to the nose.

Once this has been performed on the lateral side of the lip, next, the same process will be performed on the medial side of the cleft, again, elevating any submucosal plane, the skin along the lip cleft margin. Precision is necessary to create exact incisions for this portion of the procedure.

The muscle next is then elevated off of the skin.

Care is taken not to dissect as much on this side, given we like to preserve the philtral dimple.

The primary nasal rhinoplasty is then performed on the medial aspect along the columella, separating the cartilages from the skin, again, allowing the skin to shift over the cartilages for recreating shape and form of the nostril.

This is done in a blunt technique.

Next, the flaps that had been elevated in a submucosal layer are then sewn into the nasal wall to allow for increased skin within the nose.

The medial mucosal flap is then attached at the gum line.

This is the first step to closing the nasal floor.

This will create the internal lining of the nasal floor.

This is a multilayer closure.

This flap will be sutured to the alveolar arch on the lateral aspect of the cleft, as demonstrated here.

Absorbable sutures are used for this technique. This demonstrates the mucosal flap stretched across the alveolar arch.

Now, we are performing an alar base suture, which spans between the columella and the ala.

Here is the sutures being placed across the ala.

This will allow for repositioning the lateral ala into a more medial position.

We do not tie this down at this point, but do place the suture for future closure.

This, again, allows us to look at the alar base and try to create symmetry. This is, again, continued closure of the nasal tissue. We try to close all areas said that there is minimal raw exposure of tissue. Next, the buccal sulcus is recreated.

This is done by advancing the mucosal edge along the submucosal flap that has already been sutured to the gingiva, or the alveolar arch.

This allows for closure of the sulcus. This is demonstrating the closure here.

This is performed again with absorbable sutures in a running or interrupted fashion. Again, demonstrating the closure now on the medial side.

This is an advancement of the mucosa as it's being closed.

We do not close the rest of the buccal mucosa until the very end of the procedure.

Now, we are closing the muscular layer, which has been separated from the skin.

This is the most important portion of the lip closure, given this is the functional component of the lip.

And this will allow for the lip shape and restore the ability for the muscle to be a sphincter. Absorbable deep sutures are placed here.

Care is taken to ensure that the muscle is well-aligned.

As the muscle is brought together, you can see that the lip skin overlying the muscle also is advanced forward, and it aids in taking tension off of the skin.

Multiple sutures are placed in order to reapproximate this muscle. The closure is performed inferior to superior, watching very closely as the vermillion and lip realign. As you can see here, we are approaching the superior aspect of the lip.

And care is taken to make sure that the nasal fore is well-approximated.

Once the muscle has been closed, care is taken then to very meticulously close the skin.

This is done with deep dermal sutures that are absorbable.

The triangles that had been designed initially are carefully sutured in place. Particular care is taken to make sure that the vermillion edge, or the red lip line is approximated and has excellent contour so that there is no peaking at the cupid's peak on this side.

When this peaks, it is a very telltale sign of a cleft lip repair.

Therefore, we spend significant time reapproximating this vermillion edge.

Here, we are trimming the excess buccal mucosa so that the lip has symmetry at the red lip component. This is the point in which time is taken to make sure the vermillion is very well-approximated, so that there's a smooth contour between the cupid peaks and bow.

As you can see, all of this is done in a deep subdermal plane.

We attempt to put as few sutures on the skin as possible to prevent tracking of suture scars. Once this has been done and the look has been reapproximated, if there are any areas where there's gapping of the skin, we then will put a 6-0 fast-absorbing gut suture.

Here, we are closing the nasal floor.

As you can see, time is taken to recreate the nasal seal so that there is volume at the nasal floor. Here, we are now showing the nose after it's been closed.

And then next, we are now closing the buccal mucosa, which is the last of the lip closure.

And this is where if there's any excess tissue, we can still excise it.

But again, we are trying to create symmetry and volume. Now, we are showing the last step, which is sutures that are placed across the nasal tip to recreate symmetry.

The skin is being shifted over the cartilage and allowing the skin to reform in a more circular nasal nostril shape.

Figure E shows the cleft lip after it has been repaired immediately post-operatively before Dermabond glue has been placed.

As you can see, minimal sutures have been placed on the skin, with the exception of one small absorbable suture right at the triangle.

Image F then reveals the cleft lip after it has been healed for approximately six months.

As you can see, the vermillion peak is symmetric on both cleft lip and non-cleft lip side.

There is good re-alignment of the vermillion roll as well, and the scar is minimal.

This image reveals, again, the pre-operative and postoperative views of the right cleft lip repair after a subunit approach.

As stated in the video, the key components are restoring the orbicularis oris muscle into its sphincter position, as well as recreating the cupid's peak so that there is symmetry on both sides, and there is no peaking of the cupid's peak, which used to be a telltale sign of a cleft lip repair.