Valley man receives life-changing facial surgery

Banner Children's surgeon treats severe birth defects

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[00:00:05.20] David Bufkin is an interesting case in that he is a severe expression of a unilateral cleft lip and palate. He was initially repaired by a very gifted surgeon, but because of the severity of his cleft, the upper jaw did not express adequate growth. And as the remainder of his face grew normally, his upper jaw and midface became very, very recessed.

[00:00:38.32] Essentially his body was growing out while his face remained--

[00:00:41.65] His upper jaw--

[00:00:42.61] His upper jaw remained where it was from--

[00:00:44.53] That's correct. His upper jaw, which includes where the nose sits and includes the palate, never grew forward. That is not uncommon in cleft children and often can be fixed with orthodontia alone or sometimes with standard surgery.

[00:01:02.85] His was very severe. So he was recessed and needed to come forward in the range of 3 centimeters, which is a large movement. To do that, we freed his upper jaw up to almost where the eyes live, the orbits, surgically from the cranial base, the base of the skull, attached it to an external rigid device that then slowly over time distracted or moved his upper jaw forward. And with that technique, we can accomplish very large movements over time.

[00:01:44.80] You had to essentially deconstruct his upper face and then attach it to the red tube system.

[00:01:52.15] So we freed his upper-- or rather his midface from the cranial base and then attached that to an external device and frame that could, over time, bring it forward.

[00:02:05.74] What's the timeline for something like that? And I know we'll talk a little bit about relapse too in a little bit, but I know you have to wait for bone to grow, essentially, in this case, don't you? Or do you have other distractors that are permanently installed that are--

[00:02:19.84] So that's a great question, and there typically is what's called a latency period where you do the procedure and you allow the bone and the wounds to heal for a very short period of time. Sometimes that's days. For us, that's, in a case like this, zero days. We started distracting him on the operating-room table.

[00:02:44.26] Then the distraction process goes on 1 millimeter a day. So if you're going to distract him 30 millimeters, that's 30 days.

[00:02:55.69] The rule of thumb is that you would leave it on for at least that period or twice that period afterwards. With David wearing an external frame at his age, it's a challenge and a real psychosocial hardship on these children and adults. So it has to be tempered by that as well.

[00:03:20.23] Once you get them in place, a lot of the maintenance of that position can be done orthodontically and with elastic therapy. And so you may have noticed in the visit today--

[00:03:30.58] So his braces and his elastics are relatively new or nose post?

[00:03:34.66] He had that earlier in his treatment for other things, but right now what they're doing largely is helping to keep his upper jaw forward.

[00:03:45.75] You discussed relapse as a real concern and an almost ultimate likelihood or almost certainty, really. What degree of relapse or recession are you expecting, or what do you see in patients, and does it impact because he's older?

[00:04:04.50] So with standard orthognathic surgery, standard jaw surgery without distraction, 10 millimeters might be a large movement. With distraction, we can easily do 20 millimeters. He's 30 and beyond, so he's at very high risk for relapse and I think indeed will have some.

[00:04:27.54] And what relapse means is you can move the face forward, the bone of the face forward, but what we call the functional matrix of the bone-- or rather the muscle, the skin, the nerves, the blood vessels, all of that over time is continuing to try to bring it back, and you have to continue to defeat those forces for some time postoperatively-- actually a long time.

[00:04:52.08] Because his body is programmed to think that his face should be-- or that his upper palate should be where it used to be.

[00:04:59.76] Correct. That whole matrix has not grown and is not programmed to be 3 centimeters forward. We moved his bone there, but the rest of his body would like to be 3 centimeters back. And so--

[00:05:17.76] So we call that the functional matrix. And so the muscles, the nerves, the blood vessels will be trying to draw him back for some time, and you see that in a lot of bony movements in the body. We see that in the skull. Orthopedic surgeons can have issues with that. That's a fairly common phenomenon.

[00:05:38.28] Is there anything else you want to share about what sets this case apart?

[00:05:43.74] We were able to do David with approximate hour-long surgery without transfusion. That was nice for the family and important with their belief system. So it was a technically challenging case for those reasons.

[00:06:02.74] This is a life-changing event for him. You'll see from the preoperative, he was pretty deformed. And now they think he looks like his father or grandfather. So it's truly for him been life changing.

[00:06:21.94] That speaks to kind of the power that you and your fellow surgeons have to be able to help impact a person's life.

[00:06:28.33] Right. I would agree with that. I mean, there are functional components to this, obviously. Cosmetic might be frivolous in that we're just trying to restore David to the form he would have been given without this birth defect. And if he hadn't had a cleft, which can be a sporadic event, his upper jaw would not have been in that position. So it's more restorative surgery-- reconstructive surgery than it is cosmetic, I think.

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