

Bipolar sternocleidomastoid release with z-plasty for neglected congenital muscular torticollis in a 4-year-old boy: a case report

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Dr. Md Mofakhkharul Bari,¹ Dr. AM Shayan R Bari,¹ Prof Dr. Shahidul Islam,¹ Tahsin Ferdous,² Safwanul Aman²

¹Department of Orthopaedic and Traumatology, Bari-Ilizarov Orthopaedic Centre, Bangladesh

²Department of Orthopaedic and Traumatology, Bangladesh Institute of Health Science (BIHS), Bangladesh

³Department of Orthopaedic and Traumatology, MRCP, Consultant, Omega Hospital, Bangladesh

Correspondence: Md. Mofakhkharul Bari, Department of Orthopaedic and Traumatology, Bari-Ilizarov Orthopaedic Centre, Bangladesh, Email bari.ilizarov31@gmail.com

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Introduction

Congenital muscular torticollis is something most paediatric orthopaedic units encounter regularly. It shows up as a tight, sometimes lump-like sternocleidomastoid that pulls the head down to one side while turning the chin to the other, and it remains one of the more familiar causes of an abnormal head posture in an otherwise healthy infant.¹ The cause is idiopathic in most of the cases. Ideas that keep coming up in the literature include the baby being cramped for space in the womb, a kind of compartment-syndrome effect on the muscle around birth, and mechanical stress from a difficult or prolonged labour - this last one is worth noting, since it fits the history in the child we describe here, even though nothing else about his birth was abnormal.¹



Figure 1 Image Shows head tilting on the left side (Back side view)



Figure 2 Image Shows head tilting on the left side (Front side view)

Most infants do well with simple stretching exercises and physiotherapy, especially if treatment starts within the first year.¹ The trouble comes when a child either presents late or simply fails to respond to a genuine trial of conservative treatment — the fibrous band stays put, neck rotation stays limited, and left alone this can eventually tilt the face and skull out of symmetry.² At that point, surgery on the sternocleidomastoid is really the only remaining option. Surgeons have described a few variations: releasing the muscle at just one end (usually where it attaches near the sternum or clavicle), releasing it at both ends, or releasing both ends and adding a Z-plasty so the muscle lengthens gradually rather than being cut straight across, which tends to leave a smoother contour instead of a visible step.^{2,3} Across a number of published series — from young children through to adults who had lived with the deformity for years — bipolar release comes through as a dependable way of getting the neck moving and the head sitting straight again, with complications being the exception rather than the rule.³⁻⁶ Here we describe a 4-year-old boy with left-sided congenital torticollis that had already failed a course of physiotherapy elsewhere, treated by bipolar release with Z-plasty, who went on to make a complete recovery by six months.

Case presentation

A 4-year-old boy was brought to the Department of Orthopaedics at BIHS General Hospital, Dhaka, with his head tilted to the left — something his parents said had been present since he was born. He was delivered at term, on cephalic presentation, after a labour that was longer than usual, but otherwise there was nothing unusual about the birth: no instrumentation, no birth asphyxia, and importantly, no other congenital defect. He had no other medical problems of any kind.



Figure 3 Prominent taut sternocleidomastoid muscle on left side.

Before coming to us, the family had already tried physiotherapy elsewhere for some time. Unfortunately the head tilt and the stiffness in his neck were unchanged, which is what eventually brought them to this hospital to discuss surgery.

Examination: On examining him, a tight, cord-like band was easily palpable along the course of the left sternocleidomastoid. His head sat tilted to the left, and both active and passive rotation of the neck were restricted. There was nothing to suggest facial or cranial asymmetry of concern, and the rest of his examination was unremarkable.

Investigations: Cervical spine X-rays were done before planning surgery, mainly to rule out a bony torticollis such as a vertebral anomaly or a Klippel–Feil-type problem. These were entirely normal, which pointed firmly to a muscular rather than a skeletal cause.

Treatment: Because physiotherapy had already been tried and failed, and because he still had a tight fibrotic band restricting his neck, we planned surgical release. He underwent a left bipolar sternocleidomastoid release with Z-plasty under general anaesthesia. The whole procedure took only about 20 minutes. What we noticed on the table was how genuinely rigid the muscle had become - almost like a taut band under tension, rather than ordinary muscle tissue, which fits with how long this had been left untreated. There were no complications during surgery, and the skin was closed with a cosmetic subcuticular technique.

Postoperative course: A cervical collar was fitted after surgery and kept on for 21 days. From the third day onward, while he was still wearing the collar, we started him on postural correction and stretching exercises, which continued as the collar was gradually weaned off. The wound healed cleanly - no infection, no haematoma, no breakdown - and the rest of his recovery was uneventful.



Figure 4 Just after bipolar release of the sternocleidomastoid muscle and z-plasty.



Figure 5 The surgical wound was closed by an intradermal stitch.

Outcome and follow-up: By the time he came back for review at six months, his neck moved fully and symmetrically in every direction, the tilt had completely resolved, and there was no residual deformity to speak of. The scar had settled into a good cosmetic result, and he was back to running around and behaving like any other four-year-old, with no restriction on his activities.



Figure 6 Follow up after six months no tilting of head and wound is completely healed.

Discussion

Children with congenital muscular torticollis are usually first noticed as newborns, when a lump or tight band in the sternocleidomastoid is felt alongside the tilted head, and most of these children do perfectly well once physiotherapy is started early.¹ Prolonged or difficult labour, along with breech presentation and general intrauterine crowding, keeps coming up as a likely contributing factor, and it is worth mentioning that our patient did have a history of prolonged labour, even though his presentation at delivery was entirely normal.¹

What happens when physiotherapy simply does not work, as it did not in this child, is that surgery moves from being an option to being the sensible next step. Outcomes tend to be best when this is done somewhere between one and four years of age, before the face and skull have had time to develop any lasting asymmetry from the tilt.² Bipolar release — dividing the muscle at both its mastoid and sternoclavicular ends — has held up well across a range of published series, whether the child was treated promptly or, as happens often enough in places without easy access to early care, presented years later as a neglected case.^{2,3,5,6} Adding a Z-plasty at the sternal end, which is what we did here, lets the muscle lengthen out gradually instead of being divided straight across, and several groups working with both children and neglected adult cases have found this gives a tidier cosmetic result.^{2,4}

The muscle we found at surgery - genuinely rigid, almost like a taut cord rather than normal tissue - is fairly typical of what turns up once physiotherapy has already been tried and failed, and it's really the strongest argument for referring these children for surgery sooner rather than continuing to wait.^{1,2} The fact that this case took only 20 minutes on the table and had no complications at all, either during or after surgery, lines up with what other surgeons have reported about bipolar release being a quick and forgiving procedure once you know what you're doing.^{3,6}

Different centres do the rehabilitation part differently - some use head-halter traction, others rely on a cervical collar -but nearly everyone follows it with a structured stretching programme to keep the correction from slipping backward.² We kept the collar on for 21 days and started exercises from day three, and the result was about as good as one could hope for: full movement, no tilt, a scar that healed well, and all of it still holding at six months. That matches what has been reported elsewhere - that bipolar release, paired properly with rehabilitation afterward, reliably gives children back a normal-looking, normally-moving neck even in cases that were left untreated for a while.^{2,3,5,6} One thing worth being upfront about is that six months isn't a very long follow-up window. A longer period of observation would help confirm that this correction holds, since occasional late recurrence after SCM release has been described in the literature.³

Conclusion

What this case really shows is something fairly reassuring: even when physiotherapy has already failed and a child comes to us with a genuinely stiff, fibrotic sternocleidomastoid, a bipolar release with Z-plasty - followed by a properly supervised collar and exercise routine — can still give a completely normal-looking, normally-moving neck within a matter of months. For a child with no other health problems, that's a good trade for a 20-minute operation, and it's the kind of outcome that makes a strong case for offering this surgery readily to similar children, including in settings where resources are limited.

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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