Case Report

Humero-Pectoral Band in Poland Syndrome

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INTRODUCTION

Poland syndrome is a congenital disorder causing unilateral agenesis of the sternal head of pectoralis major muscle and ipsilateral hand hypoplasia with syndactyly. First described in detail by Dr. Alfred Poland in 1846, subsequent reports in literature have depicted additional deformities such as absence of ribs, depressed chest wall, absence or hypoplasia of breast, absence of axillary hair, and reduced subcutaneous fat.

Of the plethora of deformities associated with Poland syndrome, humero-pectoral band has been described very recently.[1] This appears as a linear contracture band between the chest wall and the medial epicondyle of the humerus. Seyfer et al. have described it as the probable remnant of the pectoralis muscle. Here, we present such a humero-pectoral band in a boy with Poland syndrome and describe its management.

CASE REPORT

A 7-year-old boy presented to our OPD with a chief complaint of restriction of shoulder abduction of the right arm [Figure 1]. On examination, we found a band-like structure extending from the anterior chest wall to the upper arm. On active shoulder abduction, the range was 90°, and on passive abduction of the right arm, we could achieve 120° of abduction. The presence of a concavity on the right side of the chest and an atrophic nipple–areola complex confirmed our diagnosis of Poland syndrome. There was no associated abnormality in the hand, and the fine motor skills of the child were normal.

The humero-pectoral band in Poland syndrome is a rare presentation and needs urgent surgery because it restricts the shoulder abduction of the patient. In our case, instead of excising the band, we have made use of the tissue by including it in the Z-plasty flaps which make the flaps reliable even though they were supplied by a narrow base.

Because the priority of the patient was the restoration of shoulder abduction, we planned to do a five-flap Z-plasty to release of the humero-pectoral band. While raising the flaps, the fascia of the band was also incised and included in the flap. This technique was used so that the flap would carry fascia, and the band would be released in the form of a Z-plasty rather than excising the band. The flaps were closed with 3-0 monofilament sutures [Figure 2]. A shoulder abduction splint was placed for 14 days, but the elbow and arm were left out of the splint to allow movement. Sutures and abduction splint were removed on the 14th postoperative day.

DISCUSSION

The most widely accepted theory regarding the etiology of Poland syndrome is the malformation of the subclavian artery and its branches in the 4th to 6th week of pregnancy. This affects the internal thoracic artery leading to deformity of the pectoralis muscle and other hand deformities.[2] Clinically, these patients were classified into seven types depending on the deformities of the hand by Al-Qattan. Because there were no other symptoms besides restriction of shoulder abduction, our patient was classified as Type 1 deformity.[3] Another classification by Foucras et al. classified patients into three types depending primarily on the chest wall deformity.[4] This classification helps decide chest wall

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reconstruction, and even according to this classification, our patient was a Type 1 category. Since our case was only 7 years old, so a staged reconstruction was planned. In the first stage, only release of the band was planned, and subsequent surgery could be planned as per the cosmetic desire of the child once he is able to express his views regarding his appearance. Although most patients may require an LD flap for providing contour, other options such as transverse rectus abdominis, free deep inferior epigastric artery, and free superior gluteal artery flaps are also available for reconstruction.

For the release of the humero-pectoral band, a five-flap Z-plasty was designed, which combines the lengthening of a four-flap Z-plasty (75%) with a VY advancement (50%), resulting in a 125% increase in length.\(^\text{[5]}\) The only concern with this plan is that the base of the flaps becomes narrow because of the cut, which creates the V. To increase the reliability of the Z-flaps, Kamburoğlu \textit{et al.} planned more obtuse Z-flaps (75\(^\circ\)).\(^\text{[3]}\)

We felt that this approach could restrict the mobility of the flaps to an extent, so we chose to continue with the 60\(^\circ\) angle in the Z-plasty, but unlike their approach of excising the band, we included the humero-pectoral fascia in the flap itself. In the postoperative period [Figure 2], we found no complications to the flaps, and the patient was able to achieve a full range of motion in the shoulder joint.

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**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

**REFERENCES**

1. Seyfer AE, Fox JP, Hamilton CG. Poland syndrome: Evaluation and treatment of the chest wall in 63 patients. Plast Reconstr Surg 2010;126:902-11.
2. Latham K, Fernandez S, Iteld L, Panthaki Z, Armstrong MB, Thaller S. Pediatric breast deformity. J Craniofac Surg 2006;17:454-67.
3. Kamburoğlu HO, Sönmez E, Aksu AE, Evrenos MK, Safak T, Keçik A. A rare Poland syndrome deformity: humero-pectoral band. J Hand Microsurg 2011;3:28-30.
4. Foucras L, Grolleau-Raoux JL, Chavoin JP. Poland’s syndrome: Clinic series and thoraco-mammary reconstruction. Report of 27 cases. Ann Chir Plast Esthet 2003;48:54-66.
5. Hudson DA. Some thoughts on choosing a Z-plasty: The Z made simple. Plast Reconstr Surg 2000;106:665-71.