

# Congenital Amniotic Bands : Our Experience of 10 Cases

A HAMEED

Department of Plastic Surgery, Shaikh Zayed Hospital, Lahore

Correspondence to: Dr. A. Hameed

**Congenital constriction bands syndrome or congenital amniotic band syndrome affects 1 in 15,000 births<sup>1</sup>. In its severest form it presents as intrauterine amputations but moderate form constriction rings on the extremities at birth. We treated 10 cases in a period of 3½ years from May 1993 to Oct 1996. The age of patients at presentation ranged from less than one day to 3 months. In 3 patients (30%) operative treatment was carried out within 24 hours of presentation. 3(30%) underwent surgical treatment within one week of presentation. 2 patients (20%) had operative treatment in 9 months - 1 year. Two patients did not have any surgical treatment. Early treatment was carried out because of progressive swelling or discoloration of the extremity. The treatment comprised of excision of the ring and multiple Z plasties. There was immediate improvement in the colour and swelling of distal part.**

**Key word: Congenital amniotic band, Z Plasties**

Congenital amniotic band syndrome or congenital constriction band syndrome is loosely applied name given to the condition in which patient has one or more of 4 findings.

- ñ Simple constriction rings
- ñ Simple ring associated with deformity of the distal part with or without lymphedema.
- ñ Constriction rings associated with soft tissue fusions of the distal parts.
- ñ Intra-uterine amputations<sup>2</sup>.

Simple shallow constriction rings after do not need treatment, but there is a group in which treatment is indicated more on a cosmetic than functional basis. With swelling or deformity distal to ring, most cases need surgical treatment of the ring for both cosmetic and

functional purpose<sup>3</sup>. Limb threatening rings are treated on more urgent basis.

## Patients And Methods

A total of 10 patients were presented to us during a period of 3½ years i.e from May 1993 to Oct 1996. Ages ranged from immediately after birth to 3 months. All patients were referred by either the neonatologists or the paediatricians. Male to female ratio is 3:2 (4 female babies). 4(40%) patients had constriction rings in upper extremities while 6(60%) patients had lower extremity rings. 1(10%) neonate had progressive swelling and discolorations of the leg distal to the ring while 2(20%) neonates had only progressive swelling distal to the ring (Table I). 2 (20%) had rings on both lower extremities. 2 patients (20%) had concomitant anomalies as cleft palate and syndactyly.

Table I

| Age at presentation | Site of const. Ring        | Severity                             | Outcome  |
|---------------------|----------------------------|--------------------------------------|--|
| 2 hours             | Distal 1/3 leg             | Progressive swelling + discoloration | Immediate surgical treatment                               |
| 12 hours            | Distal 1/3 leg (bilateral) | Progressing swelling in one limb     | Immediate surgical treatment                               |
| 1 day               | Distal 1/3 forearm         | Swelling only                        | Surgical treatment with 24 hours                           |
| 1 day               | Bil Long legs              | Swelling only                        | Surgical treatment age day 3                               |
| 3 days              | Wrist                      | Swelling                             | Surgical treatment at age day 5                            |
| 5 days              | Distal forearm             | Swelling ring finger                 | Surgical treatment at age day 7                            |
| 1 month             | Distal 1/3 leg             | No swelling                          | Surgical treatment at 9 months with repair of cleft palate |
| 3 months            | Distal forearm             | No swelling                          | Surgical treatment at 1 year with release of syndactyly    |
| 2 months            | Middle 1/3 leg             | Very shallow ring                    | Reassurance, no surgical treatment                         |
| 3 months            | Distal 1/3 leg             | Swallow ring                         | Reassurance, no surgical treatment                         |

Surgical treatment carried out in all babies was in the form of excision of the ring and multiple Z plasties<sup>3</sup>. all procedures were carried out under general anaesthesia and tourniquet to obviate the blood loss. 5/0 or 6/0 prolene sutures were used to close the Z plasties and were taken out in 5 days and replaced with adhesive paper tapes.

## Results And Discussion

Immediate improvement in discoloration and swelling was noticed in all cases with Fig. 1 & 2. Within 48 hours of the surgical treatment 90% of the swelling had disappeared. The shallow ring uncomplicated with the swelling had good cosmetic appearance after the

## Congenital Amniotic Bands

treatment at 3 and 6 months follow ups.

Review of literature<sup>4,5,6,7,8,9,10</sup> on the congenital ring syndrome is confusing. Most cases are sporadic and the aetiology is controversial although there seems to be an acceptance to the amniotic membrane thickening at places forming the constriction bands<sup>10,11,12</sup>. The condition can present above or associated with other abnormalities i.e cleft palate or facial clefts, acrosyndactyly and hypoplastic digits

The simple and uncomplicated bands may be treated for cosmetic rather than functional reasons. Bands with the vascular deprivation distal to the constriction ring are after marked clinically by edema, temperature gradient, or discoloration because of venous congestion<sup>3</sup>. This is the group of patients which require immediate treatment.

In our experience 1 patients (10%) had discoloration of the extremity distal to the ring along with progressive edema while 1(10%) neonates had progressive edema of the distal extremity. Immediate surgical treatment was carried out these 2 patients (20%).

In 4 (40%) the swelling was not progressive so surgical procedures were carried out in more planned way 4 patients (40%) had simple shallow ring bands without any swelling of the distal parts. Two patients from this group had surgical correction only from the cosmetic point of view; the surgical correction of the bands combined with correction of other anomalies i.e cleft palate and syndactyly.

Parents of 2 patients (20%) when reassured about the condition opted not to have surgical treatment.

We conclude that this unusual congenital abnormality is usually recognized early especially if there is vascular deprivation, the surgical treatment is simple and effective with satisfactory cosmetic results.

### References

1. Patterson TJS. Congenital ring constrictions. *Br J Plast Surg* 1961; 14:1.
2. Dobyms JH. Hand surgery. I Green David P Churchill Livingstone 1988.
3. Flatt AE. The care of congenital hand anomalies. CV Mosby, St Louis. 1977; 213-27.
4. Baker CJ, Rudolph AJ. Congenital ring constrictions and intrauterine amputations. *Am J Dis Child* 1971; 121:393-400.
5. Chemke J, Graff G, Hurwitz N, Liban E. The amniotic band syndrome. *Obstet Gynecol* 1973; 41:332-36.
6. Field JH, Krag DO. Congenital constricting bands and congenital amputations of the fingers. *Placental studies. J Bone joint Surg* 1973; 55A:1035-41.
7. Gellis SS. Constrictive bands in the human. *Birth Defects: Original article series.* 1977; 13:259-68.
8. Isacsohn M, Abouafia Y, Horowitz B, Ben Hur N. Congenital annular constrictions due to amniotic bands. *Acta Obstet Gynecol Scand* 1976; 55:179-82.
9. Miura T. Congenital constriction band syndrome. *JK hand Surg* 1984; 9A:82-88.
10. Stock RJ, Stock ME. Congenital ring constrictions. *Br J Plast Surg* 1961; 14:1.
11. Kino Y. Clinical and experimental studies of the congenital constriction band syndrome with emphasis on its etiology. *J Bone Joint Surg* 1975; 57A:636-43.
12. Torpin R. Fetal malformations caused by Amnion rupture during gestation. Charles C Thomas, Springfield IL. 1968.