Manipal Journal of Nursing and Health Sciences

Volume 2 | Issue 1 Article 17

1-1-2016

Amniotic band sequence with clubfoot in a neonate: A case report

Maria Pais Ms
Manipal College of Nursing, Manipal, maria.v@manipal.edu

Leslie E. Lewis Dr
KMC, Manipal, leslie.lewis@manipal.edu

Ramesh Bhat Y Dr
KMC, Manipal

Jayashree P Dr
KMC, Manipal

Amniotic band sequence with clubfoot in a neonate: A case report

Maria Pais*, Leslie E Lewis, Ramesh Bhat Y, Jayashree P

Email: mariapuso@gmail.com

Abstract

Amniotic band sequence (ABS) refers to a variable spectrum of congenital anomalies that occur in association with fibrous amniotic bands. The abnormalities are typically limited to external structures, most frequently to limbs and digits resulting in digital amputation and constriction rings. Sometimes ABS may be associated with visceral abnormalities and clubfoot. We report a case of ABS with clubfoot in a neonate.

Keywords: Amniotic band, club foot, neonate

Introduction

Amniotic band sequence consisting of multiple congenital anomalies results from early rupture of the amnion due to multiple etiological factors. The extrinsic theory suggests that the birth defects originate from abnormal rupture of amniotic bands, followed by loss of amniotic fluid and pushing out foetal parts into the chorionic cavity (Robin, Franklin, Prucka, Ryan & Grant, 2005). The extremities of the foetus that are trapped due to vascular compression undergo necrosis subsequently. The vascular disruption theory has been proposed by a few researchers (Cignini, Giorlandino, Padula, Dugo, Cafà, & Spata, 2012).The clinical picture in ABS varies widely and may affect only the limbs. Multiple congenital anomalies due to vascular compression process during pregnancy, i.e., gastroschisis, intestinal atresia, limb reduction defects, renal agenesis, microtia, cleft lip-palate and clubfoot have also been described with ABS (Werler, Bosco, & Shapira, 2009). We describe ABS in a neonate with constriction bands in digits and clubfoot.

Maria Pais
Department of OBG Nursing, Manipal College of Nursing, Manipal University, Manipal-576104, INDIA

Leslie E Lewis
Department of Paediatrics, Kasturba Medical College, Manipal University, Manipal-576104, INDIA

Ramesh Bhat Y
Department of Paediatrics, Kasturba Medical College, Manipal University, Manipal-576104, INDIA

Jayashree P
Department of Paediatrics, Kasturba Medical College, Manipal University, Manipal-576104, INDIA

* Corresponding Author

Case Report

A term neonate born to 30-year-old primigravida mother was found to have features of ABS. Mother had spontaneous conception and the pregnancy was diagnosed for 13 weeks by ultrasound examination. She wanted to terminate pregnancy for social reason and was admitted for medical termination of pregnancy (MTP) at the 16th week. She received tablet Mifegest 200 mg orally for the same. But later family decided to continue the pregnancy. The mother subsequently did not have regular antenatal check-ups, did not receive iron and folic acid prophylaxis, and the anomaly and foetal growth scan were not performed. There was no family history of congenital anomalies and it was a non-consanguineous marriage. At the 38th week of gestation, she came to labour room with complaints of leaking per vagina and pain in abdomen. She

How to cite this article: Pais, M., Lewis, L. E., Bhat , R. Y., & Jayashree, P. (2016). Amniotic band sequence with clubfoot in a neonate: A case report. *Mpl J of Nurs Health Sci*, 2(1), 78-80.

delivered vaginally a live female baby weighing 2600 grams. Mother's blood group was O negative, baby was O positive and direct combs test was weakly positive, hence she was given injection anti D 300 mcg intramuscularly. On physical examination, the neonate had length of 47cm and head circumference of 33 cm. Constriction rings were present on digits of right hand (Figure1) and feet suggesting the ABS. There was also associated syndactyly. Clubfoot was observed on the left side (Figure 2). Systemic examination was normal.

Figure 1. Constriction rings on digits.

Figure 2. Clubfoot in amniotic band sequence

Genetic consultation ruled out any other syndrome. Paediatric orthopaedicians advised cast application for clubfoot. Hand surgeons advised review and release surgeries at the third month of age. The baby was discharged with an advice of exclusive breastfeeding and regular follow up.

Discussion

The occurrence of amniotic band sequence varies from one in 1200 to one in 15000 live births. There is no gender or ethnic predisposition for ABS (Brown, & Bayat, 2009).The aetiology of ABS is not well understood and controversial (Bodamer, Popek & Bacino, 2001). Early rupture of amnion with minor effect on the foetus producing malformations due to disruption of natural morphogenesis, loss of amniotic fluid and foetus break through the chorionic sides of the amnion produces multiple mesoblastic fibrous bands that trap the foetal parts mainly upper and lower limbs stretching across the chorionic cavity (Chandran, Lim, & Yu, 2000). The deformation or disruption depends on the period of gestation. Abdominal trauma and oral contraceptive usage during first trimester have been proposed as etiological factors. The developmental malformations due to ectodermal and mesenchymal disruption have been explained. Amniotic band sequence can be identified as early as 12 weeks of gestation and during the second trimester while performing routine anomaly scan (Guzmán-Huerta, et.al 2013).In the case reported here, ABS with left foot having clubfoot was identified. No definite aetiology could be identified. It is not known whether attempted MTP had any role in ABS.

Nursing responsibility/implications while caring an infant with amniotic band sequence

ABS is unfamiliar to many neonatal nurses. Its presentation is variable in both type and severity. Although better understood today, there remain many unanswered questions regarding the aetiology and pathogenesis. A knowledgeable nurse will be able to assist in the diagnosis of ABS, support the mother and other family members in better understanding the sequence and care for the infant. The nurse and the team workers have to motivate the mother for early identification through ultrasound during antenatal period and help counsel the parents. The most important aspect of counselling is identifying the cause for the purpose of accurate recurrence risk counselling and prepare the parents for accepting the deformity if not severe and no treatment is needed, and be ready to accept a major surgical intervention to reconstruct all the sequence and part of the arm or leg. A team approach including medical, nursing

and paramedical worker to provide compressive care is instituted to the infant and family. Both nursing and medical research needs to continue in this area to gain more knowledge about this complex disease process.

Conclusion

Amniotic band sequence comprises different clinical pictures but may affect only the limbs. The constriction bands on digits usually give clues to the diagnosis. As the vascular disruptive process during gestation may lead to a variety of other congenital anomalies including visceral malformations, cleft lip/palate and clubfoot, one should always look for additional abnormalities in ABS. As nurses are involved in the team approach, their role starts during the antenatal period and extends into the immediate neonatal period. Along with the other medical team, nurses help counselling the parents regarding many issues related to ABS.

Sources of support: None
Conflict of interest: None declared
Source of support in form of grants: None

References

1. Brown, J., & Bayat, A. (2009). Genetic susceptibility to raised dermal scarring. *British Journal of Dermatology*, *161*(1), 8-18.
2. Bodamer, F., Popek, E. J, & Bacino, C (2001). Atypical presentation of amniotic band sequence. *American journal of medical genetics*, *100*(2), 100-102.
3. Cignini, P., Giorlandino, C., Padula, F., Dugo, N., Cafà, E. V., &Spata, A. (2012). Epidemiology and risk factors of amniotic band syndrome, or ADAM sequence. *Journal of prenatal medicine*, *6*(4), 59.
4. Chandran, S., Lim, M. K., & Yu, V.Y. H. (2000). Fetal acalvaria with amniotic band syndrome. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, *82*(1), F11-F13.
5. Guzmán-Huerta, M. E., Muro-Barragán, S. A., Acevedo-Gallegos, S., Velázquez-Torres, B., Gallardo-Gaona, J. M., Ramírez-Calvo, J. A., & Aguinaga-Ríos, M. (2013). Amniotic band sequence: prenatal diagnosis, phenotype descriptions, and a proposal of a new classification based on morphologic findings. *Rev Invest Clin*, *65*(4), 300-306.
6. Robin, N. H., Franklin, J., Prucka, S., Ryan, A. B., & Grant, J. H. (2005). Clefting, amniotic bands, and polydactyly: a distinct phenotype that supports an intrinsic mechanism for amniotic band sequence. *American Journal of Medical Genetics Part A*, *137*(3), 298-301.
7. Werler, M. M., Bosco, J. L., & Shapira, S. K. (2009). Maternal vasoactive exposures, amniotic bands, and terminal transverse limb defects. *Birth Defects Research Part A: Clinical and Molecular Teratology*, *85*(1), 52-57.