

CASE REPORT

Does omphalocele major undergo spontaneous closure?

Ekerete A. Ekot*, Victor C. Emordi, and David O. Osifo

Department of Surgery, University of Benin Teaching Hospital, Benin City, Edo 234, Nigeria

*Correspondence address. Department of Surgery, University of Benin Teaching Hospital, Benin City, Edo 234, Nigeria. Tel: +234-80-65-16-2747;
E-mail: ekerete7@gmail.com

Abstract

The early surgical management of omphalocele major in Africa predisposes neonates to surgical complications which are often worsened by the presence of associated anomalies. Conservative management using available escharotics results in early skin cover by secondary wound healing. This delays the need for fascial closure and avoids neonatal surgical risks thus improving survival. We present a case of omphalocele major that underwent spontaneous closure during conservative management with honey dressing without surgical intervention.

INTRODUCTION

Omphalocele represents a spectrum of congenital anterior abdominal wall defects occurring at the midline as a result of failure of complete migration and closure of the embryonic body folds [1]. It remains a major source of morbidity and mortality in developing countries in contrast to the improved survival reported in developed centres where there are better prenatal diagnostic tools, obstetric care, ventilatory management, parenteral nutrition and surgical care [2].

The operative treatment of large omphalocele predisposes to hemodynamic and respiratory complications as a result of visceroperitoneal disproportion and associated cardio-respiratory anomalies [3]. Consequently, in this sub-region, conservative treatment with topical agents avoids these risks allowing secondary wound healing which results in a ventral hernia that is repaired at an older age. Several topical agents have been employed in the management of omphalocele over the years including honey. Honey is widely used in chronic wound management because of its multiple effects on different phases of wound healing [4]. Its non-toxic nature contributes to its safety for use in neonates.

This case is presented to draw attention to spontaneous closure of omphalocele major while using honey dressing for conservative management.

CASE REPORT

A 2-day-old male neonate was presented to us with a protrusion from the anterior abdominal wall following delivery through caesarean section for obstructed labour in a 30-year-old primipara. The defect was not detected by prenatal ultrasound scan and there were no other obvious birth defects or features of intestinal obstruction.

Examination revealed a midline swelling at the level of the umbilicus with an intact overlying membrane and the umbilical stump at the inferior aspect of the mass. Estimated fascial defect was ~6 cm wide and there were no identifiable associated anomalies.

Initial resuscitation was followed by daily occlusive dressing with honey which improved the wound (Fig. 1). After 14 days of conservative treatment, he was discharged to continue alternate day dressing with honey. He was seen weekly at the

Received: May 17, 2017. Accepted: July 25, 2017

Published by Oxford University Press and JSCR Publishing Ltd. All rights reserved. © The Author 2017.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com



Figure 1: Photograph of the index patient after 7 days of conservative management of omphalocele major using honey dressing.

Surgical Outpatient Department for evaluation. On the second visit, marked reduction in fascial defect was observed which closed completely by the fourth week after discharge (Fig. 2). Consent was duly obtained from the parents to use the child's clinical photograph for this report. The child has been very stable during 1 year of follow up.

DISCUSSION

Omphaloceles are classified as major or minor. The description of omphalocele major considers a defect >5 cm, presence of liver and large volume of bowel in the sac. Despite advances in neonatal surgical practices, significant morbidity and mortality has been reported in developing regions especially when ruptured or associated with life-threatening anomalies [5]. Prenatal diagnosis has improved obstetric planning and appropriate referral for specialized care in terms of ventilatory support, parenteral nutrition and surgical expertise. These are still scarcely done in this sub-region as illustrated in this index case.

Operative reduction and primary closure of large omphalocele may result in abdominal compartment syndrome from raised intra-abdominal pressure, reduced venous return from compression of the inferior vena cava leading to shock and renal failure. Several surgical options introduced over the years to prevent these complications include serial reduction of abdominal viscera using a silo, staged closure with prosthetic mesh and delayed stage closure with skin flaps alone [6]. These methods may also be associated with complications such as wound infection, dehiscence, recurrent ventral hernia, intestinal obstruction and perforation.

Conservative management of omphaloceles allows wound contraction and epithelialization with eschar formation leaving a ventral hernia that can be repaired at an older age avoiding the risk of major neonatal surgery. This approach has been reported to have better outcome than operative management in terms of shorter hospital stay, early enteral feeding and reduced mortality as seen in the index case [7]. Unlike congenital umbilical hernia which can undergo spontaneous closure



Figure 2: Photograph of the same patient depicting complete fascial closure after 6 weeks of conservative management with honey dressing.

before 5 years of age there has been no documentation of spontaneous closure of omphalocele especially the major type contrary to our observation in the index case. Since the first description of conservative treatment with alcohol by Ahlfeld in 1899 [8], several topical agents have been employed including povidone-iodine, silver sulphadiazine, sofratulle, honey and mercury containing compounds some of which have been proven unsafe due to their toxicity and other adverse effects [9]. Honey is known for its bactericidal and anti-inflammatory properties which contribute to wound healing. Nicoara et al. [10] first reported the use of honey in the conservative management of omphalocele major demonstrating its safety and efficacy. However, there has been no reported case of spontaneous closure of omphalocele following dressing with honey. Our choice of honey in chronic wound management is based on its safety, availability and affordability in addition to its wound healing properties which may have contributed to contraction and complete closure of this omphalocele major.

In conclusion, conservative management of omphalocele major is desirable considering the viscerio-abdominal disproportion and likelihood of associated cardio-pulmonary anomalies that may preclude primary surgical closure. Honey promotes wound healing and is cheap, easily available and non-toxic. However, the potential of honey dressing to cause spontaneous closure of omphalocele major awaits the results of randomized controlled trials as this method would improve the overall outcome of management of omphalocele in low resource centres of the world.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

1. Klein M. Congenital defects of the abdominal wall. In: Coran A, Adzick N, Krummel T, eds. *Pediatric Surgery*. Philadelphia: Elsevier Saunders, 2006;973–84.

2. Abdur-Rahman L, Abdulrasheed N, Adeniran J. Challenges and outcomes of management of anterior abdominal wall defects in a Nigerian tertiary hospital. *Afr J Paediatr Surg* 2011;**8**:159–63.
3. Osifo O, Efobi A. Challenges of giant ventral hernia repair in children in an African tertiary care centre with limited resources. *Hernia* 2009;**13**:143–7.
4. Sharp A. Beneficial effects of honey dressing on wound management. *Nurs Stand* 2009;**24**:66–8.
5. Egwaikhide E, Osifo D, Evbuomwan I. Management of omphalocele major. *Niger J Surg Sci* 2005;**15**:71–3.
6. Tarca E, Aprodu S. Past and present in omphalocele treatment in Romania. *Chirurgia (Bucur)* 2014;**109**:507–13.
7. Wakhlu A, Wakhlu AK. The management of exomphalos. *J Pediatr Surg* 2000;**35**:73–6.
8. Kouame B, Odehouri Koudou T, Yaokreh J, Sounkere M, Tembely S, Yapo KGS, et al. Outcomes of conservative treatment of giant omphaloceles with disodic 2% aqueous eosin: 15 years' experience. *Afr J Paediatr Surg* 2014;**11**:170–3.
9. Eltayeb A, Mostafa M. Topical treatment of major omphalocele: acacia nilotica versus povidone-iodine: a randomised controlled study. *Afr J Paediatr Surg* 2015;**12**:241–6.
10. Nicoara C, Singh M, Jester I, Reda B, Parikh DH. Medicated manuka honey in conservative management of exomphalos major. *Pediatr Surg Int* 2015;**30**:515–20.