

# Rare abdominal wall hernias in South Sudan

*This article is dedicated to the memory of Professor Giuseppe Meo who died in January and who initiated, and devoted many years to, the surgical missions in South Sudan (see obituary page 46)*

Elena Codognotto<sup>a</sup>, Alberto Kiss<sup>a</sup>, Giuseppe Meo<sup>a</sup>, Giorgio Olivero<sup>a</sup> and Peter Taliente<sup>a</sup>

## Introduction

The repair of abdominal wall hernias (AWH's) is the most common surgical procedure in the world. In South Sudan there are two unusual aspects. As elsewhere, the most frequent types of AWH are inguinal and umbilical in adults and femoral and epigastric in children and babies. However in South Sudan there is a high incidence of what the Western medical literature describes as 'rare AWH's'. These, in our experience, are the Spigelian (Figures 1 and 2) and lumbar (Figure 3) hernias representing 9% and 12 % respectively all hernia cases. In addition we see a number of umbilical hernias (Figures 4 and 5) which may reach a large size and become confused with Busoga hernias.

## The Busoga hernia<sup>1</sup> (BH)

A clear description of the BH is contained in 'Primary Surgery' by M. King et al. [1]. The BH is a variety of direct inguinal hernia common in the Busoga area of Uganda and some other African countries, including South Sudan and Ghana where it particularly occurs in women.

Direct inguinal hernias are of two kinds:

1. **Ordinary direct inguinal hernias** which are less frequent in Africa and seldom strangulate (as one has in Figure 6). They may cause no symptoms, remain the same size for long periods and may not need surgery.
2. **The BH** which is caused by a narrow defect in the conjoint tendon or transversalis fascia and consequently there is a risk of strangulation. The neck of the sac is small, so that when strangulation occurs, often only part of the circumference of the gut is involved causing what is known as a Richter's hernia (Figure7).

Direct hernias can usually be repaired using the same technique as for indirect ones, unless they are very large. However there are differences and a direct hernia may present problems:

a. The sac may have no obvious neck so it cannot be excised. The posterior wall of the inguinal canal should be sutured thereby imbricating (overlapping) or over-sewing the excess transversalis fascia. If no prosthesis is used,



Figure 1. A Spigelian hernia can become very large



Figure 2. Left Spigelian hernia

then the posterior wall of the inguinal canal should be repaired either with the classical Bassini's or the Shouldice technique, both which incise the transversalis fascia and then resuture accordingly to the method used.

b. The weak area in a direct hernia is ill-defined, and tends to involve all or most of the posterior wall of the inguinal canal. In a BH, the opening, often quite narrow, is in the transversalis fascia or the conjoint tendon. Once the sac has been adequately exposed it can be opened, the

<sup>a</sup> Comitato Collaborazione Medica (CCM) taliente@tiscalinet.it

1. In Europe this type of hernia is rare and is called a Gill-Ogilvie hernia.

contents reduced, the redundant part excised and its neck closed with a purse-string suture.

### Experience in South Sudan

Our rural surgical experience in South Sudan has been published previously [2, 3]. In 2006 we reported a retrospective study carried out over six years (March 1998 - March 2004) [4]. This was based upon a surgical care service which was assisted by teams of expatriate consultants in 28 'surgical missions' in remote areas of South Sudan. A total of 1,642 patients were operated upon. Hernia surgery represented the main workload. Hernia cases were:

- inguinal (including BH and congenital hernias) 481 (68%),
- Spigelian 84 (12%),
- lumbar 64 (9%),
- femoral 43 (6%),
- umbilical in adults 20 (3%),
- epigastric 16 (2%).

In 2011 we reported a retrospective analysis of a surgical service care and 'on-the-job' training through mobile surgical missions in South Sudan during the post conflict period 2005 and 2009 [5]. Three surgical teams conducted 23 missions in five primary health care centres in remote areas. A total of 1,543 patients were operated upon: 648 operations (42%) were hernia repairs.

The differential diagnoses of a possible hernia must always be considered and an inexperienced health worker may confuse a lumbar hernia with a subcutaneous lipoma. A BH may confuse the unwary: the herniated loop of the bowel may migrate under the skin and simulate other conditions. For example it may simulate a gynaecological condition when it extends into the labia majora mimicking a tumour or infection (e.g. abscess) (Figure 8). A lumbar hernia may be suspected when a Spigelian hernia loop moves to the lumbar region or to the lateral side of the abdominal wall. It is imperative to identify the true type of a hernia by reducing if possible the intestinal loop into the abdominal cavity.

The repair of the opening in the fascia wall is normally quite easy. Hernia repair with prosthetic meshes should be reserved for recurrences and for huge hernias because of the high risk of infection in rural hospitals and high cost. Cheap mosquito-netting for tension free hernia repair have been proposed [6,7] (Figure 9). Since 2008, we have performed 58 hernia repairs using pieces of mosquito nets as prosthetic material [8]. Follow up is very difficult so a clear description of long term outcomes is not available. However to date no problems have presented.



Figure 3. A lumbar hernia



Figure 4. Particular aspect of a large umbilical hernia (Supine)



Figure 5. Particular aspect of a large umbilical hernia (Erect)

## MAIN ARTICLES



Figure 6. Strangulated hernia

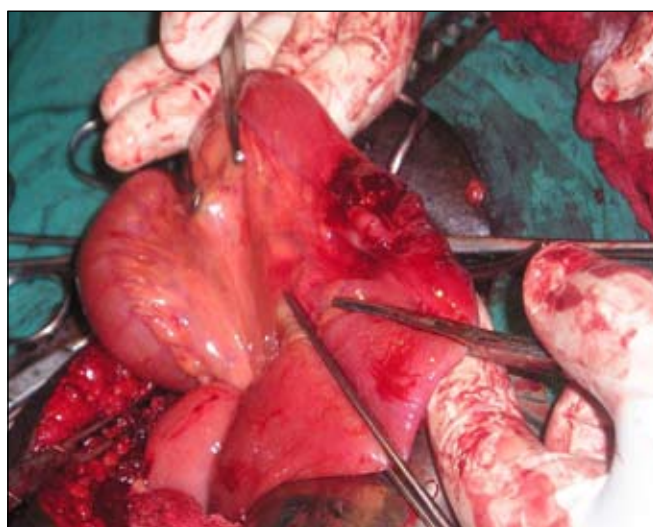


Figure 7. Intestinal resection for Richter hernia



Figure 8. A Busoga hernia can migrate into the labia



Figure 9. Mesh for hernia repair (credit Alberto Kiss)

### Conclusion

Reporting of the 'rare' abdominal hernias is important as they are 'more common' in certain geographical areas. Further studies are needed to clarify the occurrence of these hernias. This would highlight the need for health practitioners to be alert to aware of their existence and acquire appropriate surgical training. A study is needed to follow-up patients to define outcomes especially where innovative techniques are used (e.g. the use of mosquito netting as a mesh).

(All photos by the authors)

### References

1. King M, Bewes P, Cairns J, et al. 1990. *Primary Surgery*, Vol 1: Non-trauma, page 199. Oxford, Oxford University Press.
2. Meo G, Qasim S. 1997. Surgery under Adverse Conditions in South Sudan. *German Society for Tropical Surgery*, Second International Meeting, Munich, GSTS.
3. Makender E, Qasim S, Meo G. Surgery and community participation in a community-based programme in war situations. *Trop Doc* 2000; 30:20–23.43.
4. Meo G, Andreone D, De Bonis U et al 2006 Rural Surgery in Southern Sudan. *World J Surg* 30: 1–10.
5. Cometto G, Belgrano E, De Bonis U et al Primary Surgery in Rural Areas of Southern Sudan 10.1007/s00268-011-1403-1. *World J Surg* 2012; 36:556–564
6. Tongoonkar R, Reedy B. 2003 Preliminary multicentre trial of cheap indigenous mosquito-net clothes for tension free hernia repair. *Indian J Surg*; 65(1):8295.
7. Clarke MG, Kingsorth AN et al. The use of sterilized polyester mosquito net mesh for inguinal hernia repair in Ghana. *Hernia* 2009; 13:155–159.
8. Kiss A, Corona D, Kiss O. 2012. The Use of Mosquito-Net Cloths as Prosthesis in Inguinal Hernia Repair: An Experience in South Sudan". *Surgical Science* Vol. 3 No. 3, pp. 155-157. doi: 10.4236/ss.33030.