Grynfeltt–Lesshaft hernia

Personal experience of nine cases and a review of the literature

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Grynfeltt–Lesshaft hernia. Personal experience of nine cases and a review of the literature

Grynfeltt's lumbar hernia, from the author who first described it in 1866, is the rarest among all hernias of the abdominal wall and it represents, according to the most recent literature, only 2% of all hernias. Of these, about 20% are congenital, secondary mainly to defects of embryonic development, while 80% are acquired defects. Surgeries, penetrating wounds, and infections are risk factors for the development of secondary and therefore iatrogenic lumbar hernias. In the literature, there is a predominance of the left Grynfeltt hernia while a bilateral presentation is exceptional. Our recent observation of a massive Grynfeltt hernia brought us to perform a revision of the literature and of our case studies. Based on our personal experience, with the most recent literature, we believe that in the case of Grynfeltt's lumbar hernias, the laparotomy approach with the use of prosthetic materials is the most appropriate, thus making the procedure fast, easy, and safe, compared to the treatment of all other wall defects that often require a laparoscopic approach. To confirm this, it is perceived that the open technique is currently more widespread; in fact, a small lumbotomy is easy to perform, fast, and can also be performed under loco-regional or epidural anaesthesia.

KEY WORDS: Lumbar hernioplasty, Grynfeltt hernia, Hernia repair

Introduction

Grynfeltt's lumbar hernia, from the author who first described it in 1866, is the rarest among all hernias of the abdominal wall and it represents, according to the most recent literature, only 2% of all hernias, with 400 reported cases [1-3].

Among these, about 20% are congenital, mainly secondary to defects in embryonic development, while 80% are acquired defects. 55% of the acquired defects are spontaneous or primary, and the remaining 25% are secondary [3-5].
The recent observation of a massive hernia of Grynfeltt brought us to perform a revision of the literature and of our case studies.

Material, Methods and Results

From 1990 to 2020, nine patients with Grynfeltt's hernia came to our observation. Among these, six were female and three were male, aged between 51 and 82 years. Only one came for an urgent bowel obstruction.

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Four patients had a previous lumbotomy, one patient had undergone breast reconstructive surgery, therefore these hernias could be considered as "secondary" (56%), while the remaining four patients did not refer history of previous interventions or trauma, then resulting in "primitive" hernias (44%). All the patients who came to our observation had a wall defect varying from three to nine centimetres.

All but one patient had an easily reducible swelling, sometimes expandable only after repeated coughing or exercises to increase abdominal pressure and with modest painful symptoms.

Although laparoscopic surgery in the treatment of all walls and laparocelia defects is widely used in our operating unit, we currently prefer open surgery for lumbar hernias [6-9]. On the contrary, other authors report their experience of excellent results with the laparoscopic technique [10-13].

All patients but one with a small defect of about three cm were operated on under general anaesthesia in a relative lateral decubitus on contralateral side of the hernia and slightly splitting to reduce postoperative discomfort. In order to manage postoperative pain all patients underwent a deep local infiltration with clonidine under ultrasound guidance [14]. Throughout our cases defects were never repaired with direct suture or with muscle flaps but prosthetic techniques have always been used. As previously described, in the presence of the defect of about three cm we preferred to perform the surgery under local anaesthesia to better highlight the hernial sac by stress test and we used a large plug with wide meshes of Bard® with subsequent overlap a prolene prosthesis anchored at the edge of the Grynfeltt triangle without opening the peritoneum.

Some authors argue that the placement of the plug alone, as well as the direct suture, could cause a failure of the surgical repair. In fact, if the margins were rigid and inextensible, the suture would remain under tension, and for this reason, conventional repair techniques should be avoided [15-18].

We usually managed bulkier hernias by isolating the sac, highlighting the defect and measuring the door, then proceeding with the application of a composite prosthesis type parietex or ventralight in the preperitoneal and retro muscular with adequate overlap of about 4-5 centimetrs, properly anchored along the entire circumference with points not absorbable in prolene [7,19,20]. In accordance with the experience reported by Fokou et al, we avoided to open the hernial bag, with the exception of complicated hernias or urgent repair. We also tried to minimise the tension applied sometimes by leaving the prosthesis partially exposed or uncovered by muscle, since its function is to strengthen but also of replace the missing aponeurotic muscle component.

We always concluded the surgery repair by applying Tisseel spray and by placing a 19 French drainage in suction and a moderately compressive dressing [21-23].

Table I

Type	Area	Incidence
Type I	< 5cm	50%
Type II	≤ 5cm ≤ 15cm	22%
Type III	≥ 15cm	10%
Type 0	No area	18%

Table II - *Thorex's classification*

A	Extra-Peritoneal	Not containing peritoneum
B	Para-PERITONEAL	Which traction the peritoneum
C	PERITONEAL	With a real peritoneal sac

Discussion

The lateral lumbar hernia originates from Grynfeltt's space which is anatomically delimited by the 12th rib, the dentate muscle, the spinal muscles, the square muscle of the loins and by the internal oblique muscle. In depth there are the transversalis fascia and under the peritoneum. More in detail, the anatomical classification distinguishes four types of Grynfeltt triangles (Table I) and three types of lumbar hernias according to Thorek's classification [24] (Table II).

The risk factors of primary Grynfeltt hernia are obesity, advanced age, debilitating diseases, alterations of muscle trophism, poor nutritional status, excessive sudden weight loss, excessive stress, persistent cough and chronic lung diseases, connective disease, direct or indirect trauma, and everything that causes increased abdominal pressure [19,25]. On the contrary, previous surgeries, penetrating wounds, and infections represent risk factors for the development of secondary and therefore iatrogenic lumbar hernias [26].

Nephrectomies with retroperitoneal access are reported to be most at risk for developing Grynfeltt secondary hernia ,as well as repair of retroperitoneal aortic aneurysms, and latissimus dorsal flaps for post-mastectomy breast reconstruction due to denervation of lumbar dorsal muscle components [27-31]. In the literature, there is a predominance of left Grynfeltt hernia while a bilateral presentation is exceptional. In the latter, the main cause seems to be a congenital defect with aplasia of the lumbar muscles [32], thus stretched by cough and generally reducible with the manoeuvre of taxis.

Intestinal occlusion is not rare (25% of all cases), usually with the presence of a wide collar, while the throttling reported in the other cases does not exceed 10% [5].

Omentum, small intestine, colon, and although rarely even the kidney can be found in the sac. Differential diagnosis can be made with large lipomas of the dorsal lumbar wall and more rarely with renal tumours and

retroperitoneal tumours. However, expandability under stress and reducibility are missing in those cases. The instrumental diagnosis is initially based on the ultrasound investigation and then on the CT scan to better define the size of the door, the aponeurotic muscle component, and the content [25,26,33].

Conclusions

Based on our personal experience and the most recent literature review, we believe that in the case of Grynfeltt's lumbar hernias the laparotomy approach with the use of prosthetic materials could be the most appropriate, thus making the procedure quick, easy, and safe. This differs from the treatment of all other wall defects where a laparoscopic approach should be chosen, except for the treatment of large laparoceles or in the presence of wall disasters. In these cases, although a consensus has not yet been reached, the open technique seems currently more widespread as a small lumbotomy is easy and fast to perform, and it does not require pneumoperitoneum. Also, it can be performed under local, spinal or epidural anaesthesia. However, the laparoscopic approach as the advantages of being less painful and with a better aesthetic result.

Riassunto

L'ernia lombare di Grynfeltt, dall' autore che per primo l'ha descritta nel 1866, fra tutte le ernie della parete addominale è la più rara, rappresenta infatti secondo i dati della letteratura più recente solo il 2% di tutte le ernie. Di queste circa il 20% è congenita, secondaria principalmente a difetti di sviluppo embrionale mentre l'80% sono difetti acquisiti.
Gli interventi chirurgici, le ferite penetranti e le infezioni rappresentano fattori di rischio per lo sviluppo di ernie lombari secondarie e pertanto iatrogene. In letteratura è riportata una prevalenza dell'ernia a sinistra mentre eccezionale è l'osservazione di una ernia di Grynfeltt bilaterale. La recente osservazione di una voluminosa ernia di Grynfeltt ci ha indotti a rivedere l'argomento e ad eseguire una revisione della letteratura e della nostra casistica. Sulla base della nostra esperienza personale, in accordo con la letteratura più recente, riteniamo che nel caso di ernie lombari di Grynfeltt, l'approccio laparotomico con utilizzo di materiali protesici sia il più appropriato, rendendo così la procedura rapida, facile e sicura, in controtendenza al trattamento di tutti gli altri difetti della parete per i quali preferiamo sempre un approccio laparoscopico. A conferma di ciò si percepisce che la tecnica open attualmente sia più diffusa, infatti una piccola lombotomia risulta di facile esecuzione, rapida e può essere eseguita anche in anestesia loco-regionale o epidurale.

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