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Strangulated Umbilical Hernia on Peritoneal Dialysis: A Case Report

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Authors' contributions

All the authors contributed to the conduct of this work. They also state that they have read and approved the final version of the manuscript.

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Case Study

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ABSTRACT

Abdominal wall hernia is a frequent complication in peritoneal dialysis. Their prevalence varies between 7% and 27.5%. Established risk factors are male sex, an older age, multiparity and obesity. Polycystic kidney disease is controversial risk factors. The diagnosis is mainly clinical, though peritoneography imaging can be useful in difficult cases. Complications of abdominal wall hernia are a strangulation, incarceration, bowel occlusion and peritonitis; may result in death. A surgical repair is recommended. We report a case of strangulated umbilical hernia on peritoneal dialysis and also presenting the epidemiological, clinical and therapeutic features of this pathological association.

Keywords: Umbilical hernia; strangulation; peritoneal dialysis.

1. INTRODUCTION

Abdominal wall hernia is a common complication in peritoneal dialysis, accounting for up to 60.4% of anatomical complications [1]. Patients on peritoneal dialysis are at greater risk of forming abdominal hernias than the general population [2]. Their prevalence is estimated between 7 and

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27.5%, and the incidence of 0.05 to 0.08 hernias / dialysis / year [1-3].

The appearance of an abdominal wall hernia in peritoneal dialysis is a real clinical interest, since it can lead to many complications as well as a failure of the peritoneal dialysis technique [3]. However, their management is not well codified at present [4].

The aim of this article is to specify the risk factors for abdominal hernia in peritoneal dialysis identified to date, and to propose a management strategy.

2. CASE PRESENTATION

A 60-year-old, male patient, with arterial hypertension under Ramipril, he underwent prostatectomy 8 years ago for prostatic adenocarcinoma, followed by chronic renal failure due to chronic nephropathy with glomerular sclerosis. An insertion of a peritoneal catheter is recommended since 3 years. The patient has presented 2 years ago_a reducible umbilical swelling, which worsened 2 days ago and became irreducible , painful, without vomiting or transit disorder, without symptoms of obstruction of bladder outflow, all progressing in a context of apyrexia and of conservation of the general state.

Blood pressure is 129/84. Abdominal examination showed an infra-umbilical scar, a catheter in the left flank with a clean orifice Fig. 1, presence of painful, irreducible umbilical swelling, no impulsive on cough, non-expansive on exertion with the presence of inflammatory signs. The examination of the other hernial orifices and the rectal examination were normal.

The biological analysis showed hemoglobin at 11.4g / dl, creatinemia at 133 mg / l, uremia at 1.43g / l and serum potassium at 5.3mEq / l.

The exploration showed a low-abundance peritoneal effusion made of serohematic fluid, with the presence of an umbilical hernia with viable omental content with a neck of 1cm. The intervention consisted on a cure by herniorrhaphy Fig. 2.

Cytobacteriological examination of the peritoneal fluid was negative. Postoperative surveillance was without complications. Patient was transferred to the nephrology department at third hour postoperative, a biological assessment was carried out: hemoglobin at 10.2g / dl, creatinemia at 139mg / l, uremia at 1.55g / l and serum potassium at 4.8mEq / l . The patient underwent peritoneal dialysis on second day postoperative.

3. DISCUSSION

A hernia is a protrusion of an organ or part of an organ, through the wall which is supposed to contain it, in an area of physiological weakness, the most frequent locations are inguinal, ventral and umbilical [5-6].

The prevalence of umbilical hernias appears to be increasing [6]. The average time between the start of peritoneal dialysis and the appearance of a hernia was 15.9 months in the Yang et al cohort, who involving nearly 7,000 patients, of whom more than 500 presented an episode of hernia [3].

Hernias that existed prior to the initiation of peritoneal dialysis constitute a separate entity since they are treated surgically at the same time as the operation of the catheter [7-8]. Several studies describe a rate varying from 3 to 15% of hernias pre-existing to the insertion of the catheter, and up to 2-thirds of hernias pre-existing to the initiation of peritoneal dialysis [9]. Rubin et al already recommended in 1982 the systematic screening of hernias at the time of the insertion of the peritoneal dialysis catheter [9]. It therefore seems necessary to perform a careful clinical screening of the hernial orifices before pausing the peritoneal dialysis catheter.

Several risk factors for hernia formation in peritoneal dialysis are identified, some of which are still debated. The clearly established constitutive risk factors are male sex, age, multiparity and low body mass index (BMI). Older men are at greater risk for hernia formation on peritoneal dialysis [8-10]. On the contrary, the female sex emerges as a protective factor, with an 80% reduction in the risk of hernia [1-3], but the effect of which is canceled out by multiparity (> 3 pregnancies) [10-11].

More recently, the cohort study by Yang et al. found as an independent risk factor for the onset of a hernia: prolonged time of peritoneal dialysis [3].

Polycystic kidney disease is a controversial risk factor for hernia in PD. Several studies describe an increased risk of hernia formation in these patients, with a prevalence varying from 10 to

Fig. 1. Strangulated umbilical hernia with the opening of the peritoneal dialysis catheter (compress)

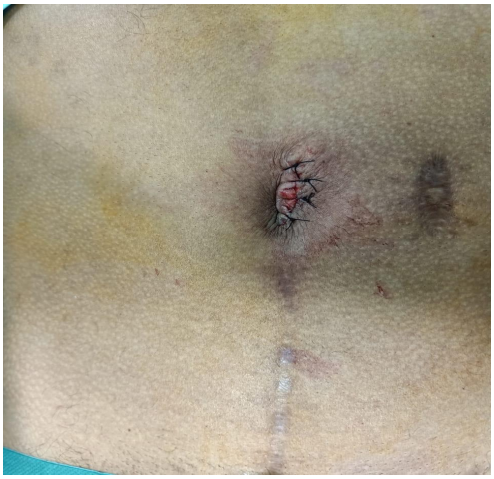

Fig. 2. Treatment of a strangulated umbilical hernia

20% [1-7,12-13]. However, the association between polycystosis and hernia formation in PD has not been found in all studies, notably that of Yang et al. [3-14,15,16].

Hernias are mostly asymptomatic, diagnosed on drainage difficulties [5]. The most common clinical manifestations are digestive discomfort or a complication of the hernia (strangulation, intestinal obstruction, peritonitis) [10-17]. Coughing and exertion may unmask or worsen symptoms. Some cases of subclinical hernias are difficult to identify, and the use of imaging tools may be necessary. The imaging techniques available to us are peritoneal scintigraphy, peritoneography with computed tomography acquisition and peritoneography with magnetic acquisition [18].

Complications from abdominal hernias can be extremely serious, leading to at least discontinuation of the peritoneal dialysis technique, and possibly even death. Mechanical complications include: Strangulation; Incarceration; Bowel obstruction; Peritonitis [7-10].

The risk of strangulated hernia is greater in patients on peritoneal dialysis than in the general population [10-19], the locations most at risk of complication are umbilical and inguinal hernias and incision hernias [8-17]. The rate of occurrence of complications requiring urgent surgical management varies from 4 to 20% depending on the studies [6-10,9-20].

Concerning the umbilical hernia, there are few data in the patient on peritoneal dialysis. Garcia Uren˜ offers management of umbilical hernias greater than 2 cm with a synthetic prosthesis after careful dissection of the hernial sac in order to limit contact with the abdominal viscera and

therefore the risk of infection. For hernias smaller than 2 cm in size, an H-hernioplasty is preferred [7].

However, since 2006, several retrospective studies have reported the early use of peritoneal dialysis, at 48 hours postoperatively [21-22]. Even if there is no consensus in the monitoring of peritoneal dialysis, the goal is to minimize the morbidity associated with the intervention and thus avoid transfer to hemodialysis. In 2006, Bargman, in a prospective study of 25 patients, set up a protocol for early resumption of post-hernioplasty peritoneal dialysis. This protocol does not cause fluid and electrolyte disturbances or clinical symptoms of under-dialysis. Likewise, there are no early complications such as fluid leakage, surgical dehiscence or early recurrence [4].

4. CONCLUSION

Abdominal wall hernia is a common problem in patients treated with continuous peritoneal dialysis. Although most patients with abdominal wall hernia are asymptomatic, some patients may present with abdominal pain or, if the hernia is incarcerated or strangulated, with signs and symptoms of peritonitis. The management of abdominal wall hernias is crucial for surgeons dedicated to peritoneal dialysis.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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