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Thirty-six Cases of Obturator Hernia: Does Computed Tomography Contribute to Postoperative Outcome?

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Abstract. Obturator hernia is relatively rare and occurs mostly in elderly, thin, multiparous women. Recent reports have highlighted the importance of pelvic computed tomography (CT) for the preoperative diagnosis. Thirty-six patients with an obturator hernia operated in our hospital were divided retrospectively into two groups (group A: 18 operations from 1973 to 1986, before we used CT; group B: 18 CT cases from 1987 to 1995). Preoperative diagnoses, operative procedures, and postoperative course were reviewed. No statistically significant differences were found between groups A and B in terms of patient characteristics. Rates of accurate preoperative diagnoses were significantly higher in group B: 39% (7/18) in group A and 78% (14/18) in group B ($p = 0.018$). The intraoperative findings, occurrence of postoperative complications, and overall mortality rates were similar between the two groups. There were four postoperative deaths (mortality rate 11%). Three of four patients who died had panperitonitis because of small bowel perforation. The correct preoperative diagnosis of obturator hernia was facilitated by CT of the pelvis, but it has no impact on patient outcome. Early diagnosis and surgical intervention are essential for this rare entity.

Obturator hernias, rare causes of small bowel obstruction, are associated with a difficult diagnosis and high mortality. During the past 23 years, 36 patients were diagnosed with obturator hernias and underwent operation for repair of their hernia. The total number of obturator hernias represents 1% (36/4824) of all hernias repaired at our institution. This rare type of hernia is often seen in thin, elderly, multiparous women. Delayed diagnosis and delayed surgical intervention directly contribute to the high morbidity and mortality. The clinical course is usually manifested by intestinal obstruction and thigh or knee pain on the ipsilateral side (Howship-Romberg sign). The clinical diagnosis of an obturator hernia is often difficult in the absence of this sign.

Cubillo [1] in 1983 was the first to report the usefulness of computed tomography (CT) of the pelvis for diagnosis of obturator hernias. Since that time, CT has aided in the diagnosis of this hernia. At our institution CT was adopted for the diagnosis of obturator hernias in 1987 and has enabled a more accurate diagnosis. Although accurate preoperative diagnosis has been possible with the introduction of CT scans, its contribution to the morbidity and mortality rates are still unclear. The aim of the present study was to review the 36 cases of obturator hernia and review the impact of changes in diagnostic modalities on postoperative complications and mortality rates.

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Patients and Methods

From 1973 to 1995 there were 36 cases of obturator hernias diagnosed and treated at Ogaki Municipal Hospital. All cases at our institution were reviewed retrospectively with respect to sex, age, body weight, height, and pregnancy history. In 1987 we adopted the use of CT for the diagnosis of obturator hernias. Pelvic CT was performed especially in elderly, emaciated women who suffered from intestinal obstruction (which is highly evokative of the suspicion of obturator hernia).

To clarify the effect of this diagnostic procedure, we divided the 36 cases into two groups (groups A and B). Group A includes the first 18 cases diagnosed between 1973 and 1986, and group B includes the latter 18 diagnosed between 1987 and 1995. The clinical presentation, preoperative diagnosis, intraoperative findings, and postoperative outcomes were compared between these groups.

Statistical significance was determined using a chi-square analysis (contingency table method). A $p < 0.05$ was considered significant.

Results

Patient Characteristics

There were 35 women and 1 man included in the present study. There were no statistically significant differences between groups A and B regarding mean age (A 79 years, B 81 years), body weight (A 34 kg, B 35 kg), height (A 145 cm, B 144 cm), number of prior deliveries (A 5.2, B 4.1), and the laterality of the hernia (Right/left: A 13/5, B 16/2). Nine patients had had prior surgery, and 27 patients (75%) had no history of previous abdominal surgery.

Obstruction of the small intestine was the most common presenting symptom. Complaints included abdominal pain ($n = 28$, 78%) and nausea and vomiting ($n = 33$, 92%). The Howship-Romberg sign was noted in 39% of patients in group A and in 50% of group B (Table 1). In group A the correct diagnosis was

Table 1. Clinical and surgical details and clinical outcome.

Parameter	Group A[a] No. (%)	Group B[b] No. (%)	p*
Positive HRS	7 (39)	9 (50)	NS
No. of correctly diagnosed patients	7 (39)	14 (78)	0.018
Diagnosed by CT	—	11 (61)	—
No. of patients who required bowel resection	9 (50)	12 (67)	NS
No. of patients with bowel perforation	2 (11)	2 (11)	NS
No. of patients with postoperative complications	4 (22)	4 (22)	NS
No. of patients who died during hospitalization	2 (11)	2 (11)	NS

NS: not significant; HRS: Howship-Romberg's sign; CT: computed tomography.
*Contingency table method.
[a]Group A, 1973–1986, $n = 18$.
[b]Group B, 1987–1995, $n = 18$.

Table 2. Postoperative complications.

Complication	Group A	Group B	Total
Sepsis[a]	1[b]	2[b]	3
Pneumonia	1	1	2
Heart failure	1[b]	0	1
Intestinal obstruction	0	1	1
Anastomotic failure	1	0	1

[a]Perforation of incarcerated bowel caused sepsis.
[b]Died.

made in seven patients (39%) preoperatively, all of whom were diagnosed by the presence of Howship-Romberg sign. In group B, a preoperative diagnosis was made in 14 cases (78%), which was significantly higher than in group A ($p = 0.018$). Three were diagnosed only by the presence of Howship-Romberg sign; the other 11 cases were diagnosed by CT of the pelvis. All of these scans revealed incarcerated bowel in the obturator canal and led to a definitive diagnosis. Among these 11 cases the Howship-Romberg sign was negative in 5. Other diagnostic methods such as ultrasonography and upper gastric image studies with contrast medium were performed in 7 and 10 cases in groups A and B, respectively, but all of them failed to demonstrate the presence of an obturator hernia. The mean time from onset of symptoms to diagnosis was 4.4 days in group A and 5.6 days in group B. The time from admission to operation was almost within 2 days in both groups.

Intraoperative Findings and Management

Laparotomy was performed through a lower midline incision in all patients. All patients showed small bowel involvement in the hernial sac and evidence of complete or partial small bowel obstruction. Of the 36 hernias, 22 (61%) were of the Richter type. The incarcerated portion of small intestine ranged from 30 to 260 cm proximal to the Bauhin valve (mean 83.8 cm). Resection of the small bowel was performed in 9 patients (50%) in group A and 12 patients (67%) in group B. Each group included two patients with intestinal perforation. The mean time from onset of symptoms was 6.7 days in 21 patients with necrotic small intestine (all of them required intestinal resection at laparotomy), whereas it was 2.6 days in 9 patients with intact small intestine. Simple closure of the hernial defect with interrupted or purse-string sutures was performed in 15 cases (42%). The repaired defects were patched with the uterus or an ovary in 16 patients (44%). In five recent cases (14%), the defects were repaired with prosthetic material (Marlex mesh). Mesh was patched over the obturator canal and fixed to the pubic ligament and obturator membrane with nonabsorbable sutures or clips.

Morbidity and Mortality

The hospital stay for survivors ranged from 9 to 90 days (mean 28 days). Significant postoperative complications were encountered in eight cases, four in group A and four in group B (Table 1). Details of the complications are described in Table 2. There were four postoperative deaths (two in group A and two in group B). Three died of sepsis because of perforated small intestine and the fourth of cardiac failure. The operative mortality rate was 11%.

Discussion

Obturator hernia occurs in older age groups, predominantly during the seventh and eight decades. The mean age of patients in this review was 80 years. Obturator hernias are nine times more common in women than in men [2, 3]. In our series, 97% of patients with obturator hernias were women. Most likely this is because women have a wider pelvis and a more triangular obturator canal opening. Emaciation is known to be the most important risk factor. In most of our cases, body weight was less than 40 kg (mean 35 kg). Severe weight loss leads to loss of the protective preperitoneal fat over the obturator canal and increases the risk of herniation [4]. Obturator hernias are found more frequently on the right side (81% in this review and 69% in another study [4]). The sigmoid colon may cover the left obturator foramen and prevent herniation.

Almost of our patients had signs of small bowel obstruction, with crampy abdominal pain, nausea, and vomiting. The Howship-Romberg sign, pain along the distribution of the obturator nerve, is known to be pathognomonic of an obturator hernia. Typically, this pain is exacerbated by extension and abduction or inward rotation of the thigh. It has been said to be present in 15% to 50% of cases [5–8]. In our series this sign was noted in seven patients (39%) in group A and nine patients (50%) in group B. There was no statistically significant difference between these rates in either group. In past series, a correct preoperative diagnosis was made in only 20% to 30% of cases, and most were diagnosed only by the presence of the Howship-Romberg sign [9]. Recently, however, CT for the diagnosis of an obturator hernia has improved the preoperative diagnostic rate [10–12]. In our series since 1987, pelvic CT was performed for suspected cases of obturator hernia, and a preoperative diagnosis was made in 14 of 18 patients (78%), 11 of whom were diagnosed by pelvic CT. Thus correctly diagnosed cases were significantly higher in group B (14/18, 78%) than group A (7/18, 39%). It is noteworthy that of these 11 cases 5 did not show a positive Howship-Romberg sign. The usefulness of other diagnostic methods have been reported in the literature, including herniography, ultrasonography, and gastrointestinal im-

aging using contrast medium [13]. These modalities, however, are less accurate compared with CT. Therefore to detect obturator hernia we recommend that the clinician perform CT at the level of the pelvis in cases of small bowel obstructions in thin, elderly, women who have not undergone abdominal operations previously.

In 21 patients (58%), resection of the involved portion of the bowel was required because of gangrenous changes. In these cases, the mean time from onset of symptoms to diagnosis and surgical treatment was 6.7 days. In contrast, it is about 4 days shorter (2.6 days) in the cases without gangrenous small intestine. It is concluded that the duration of symptoms is one of the major factors affecting the rate of bowel resection. Even though preoperative diagnostic accuracy is superior in group B, the time from admission to operation and the rate of bowel necrosis did not differ between groups A and B. This is because in most CT cases more than 3 days (average 4.5 days) have passed from the onset to surgery and the viability of the bowel becomes irreversible even if CT was performed immediately after admission.

Obturator hernias carry a high mortality rate, ranging from 12% to 70% [14]. Our overall mortality rate was 11% (4/36). The mortality rate did not differ between groups A and B. It should be emphasized that in three of four patients who died (75%) more than 10 days had passed from the onset of symptoms and they had panperitonitis because of perforated small bowel. In these cases CT was not performed because of the emergent condition of the patient.

Conclusions

The introduction of CT increased the preoperative diagnostic rate of obturator hernia, but it did not decrease the rate of bowel necrosis or of postoperative morbidity and mortality. Preoperative diagnostic accuracy is not necessarily important to change the prognosis unless it shortens the delay to operation.

Résumé

Fond du problème: La hernie obturatrice est relativement rare et se voit surtout chez la femme âgée, multipare, amaigrie. Les rapports récents soulignent l'importance de tomodensitométrie (TDM) dans le diagnostic préopératoire. Méthodes: 36 cas de hernie obturatrice opérée dans notre hôpital ont été divisés rétrospectivement en deux groupes: (A, 18 opérations entre 1973 et 1986, avant l'utilisation de la TDM; et B, 18 cas avec TDM entre 1987 et 1995). Les diagnostics préopératoires, les procédés opératoires, et l'évolution postopératoire ont été analysés. Résultats: on n'a trouvé aucune différence statistiquement significative entre les deux groupes en ce concerne les caractéristiques de patients. Le taux de diagnostic préopératoire précis était significativement plus élevé dans le groupe B (39% (7/18) dans le groupe A comparé à 78% (14/18) dans le groupe B, $p = 0.018$). Les données peropératoires, la survenue de complications postopératoires et la mortalité globale étaient similaires. Quatre décès postopératoires (taux de mortalité 11%) sont survenus. Trois des 4 patients qui sont décédés ont eu une péritonite en raison d'une perforation de l'intestin grêle. Conclusion: Un diagnostic correct préopératoire de la hernie obturatrice a été facilité par la tomodensitométrie du pelvis mais cet examen n'a pas influencé l'évolution. Un diagnostic et une intervention chirurgicale précoces sont nécessaires dans cette entité rare.

Resumen

Antecedentes: la hernia obturatriz es una entidad rara que se presenta mayoritariamente en mujeres de edad, delgadas y multíparas. Publicaciones recientes destacan la importancia de la tomografía computadorizada pélvica en el diagnóstico preoperatorio. Métodos: dieciséis casos de hernia obturatriz operada en nuestro hospital fueron retrospectivamente divididos en dos grupos (A, 18 operaciones entre 1973 y 1986, antes del uso de la tomografía; B, 18 casos estudiados con tomografía computadorizada entre 1987 y 1995), y se hizo la revisión de los diagnósticos preoperatorios, los procedimientos quirúrgicos y las evoluciones postoperatorias. Resultados: no se encontraron características significativamente diferentes entre los pacientes de los grupos A y B. La tasa de diagnóstico preoperatorio correcto apareció significativamente más alta en el grupo B: 39% (7/18) en el grupo A y 78% (14/18) en el B, $p = 0.018$. Los hallazgos intraoperatorios, la tasa de complicaciones y la tasa global de mortalidad fueron similares en los dos grupos. Se registraron cuatro muertes postoperatorias (mortalidad 11%), tres de ellas ocasionadas por peritonitis debida a perforación intestinal. Conclusión: La tomografía computadorizada de la pelvis facilitó el diagnóstico preoperatorio correcto de la hernia obturatriz pero no tuvo impacto sobre la evolución del paciente. El diagnóstico y la operación precoces son esenciales en esta rara entidad clínica.

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Invited Commentary

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In consideration of the rarity of obturator hernia [1] the article of Yokoyama and coworkers reports an uncommon experience in the treatment of this pathologic entity. It once more emphasizes the difficult diagnosis and its possible life-threatening evolution. In fact, the clinical picture in these patients is often confusing owing to the variability and intermittence of symptoms and frequent absence of pathognomonic signs at clinical examination. For these reasons, as reported also in this series, in most cases obturator hernia requires an emergency operation for the presence of intestinal obstruction or, even worse, of peritonitis due to perforation. An intestinal resection is frequently required, and surgery can be followed by a very high mortality rate [2].

There is general agreement that in these instances to improve postoperative outcome operation should be performed as soon as possible. Unfortunately, surgeons cannot reduce the time from onset of symptoms to presentation; they can only shorten the time from presentation to surgery by rapidly diagnosing intestinal obstruction or peritonitis based on clinical symptoms and signs and radiologic findings. Obviously, when these clinical conditions have been recognized, operation should not be delayed to determine the definitive diagnosis of their cause. In fact, in the reported series authors excluded patients in emergent conditions from the computed tomography (CT) study and performed it soon after admission in the other instances.

Computed tomography is an easy-to-perform, easily available, noninvasive examination. In case of intestinal obstruction, CT has proved effective for showing both the presence and cause of intestinal obstruction. Furthermore, CT and ultrasonography are the only imaging techniques able to detect obstruction itself in patients who have undergone bypass procedures that entail the exclusion of long intestinal limbs from the alimentary stream [3]. The effectiveness of CT for the diagnosis of intestinal obstruction due to obturator hernia incarceration or strangulation reported by some authors is confirmed by this experience in which correct preoperative diagnosis of incarcerated obturator hernia increased from 39% to 78% using this technique. Conversely, to my knowledge, there are no reports in literature of preoperative diagnosis of obturator hernia by CT in the absence of an intestinal loop into the hernia sac. With this condition, clinically corresponding to patients with intermittent symptoms such as pain along the anteromedial aspect of the thigh, abdominal pain, and distension, which are often a prelude to definitive incarceration and obstruction, it is my opinion that if a pelvic hernia is suspected herniography could be performed.

Laparoscopy has been widely used throughout the world. It has been demonstrated to be less invasive than traditional surgery and equally effective for diagnosis and treatment of many abdominal pathologic entities, including hernias. Furthermore, in patients with abdominal wall hernia, intraabdominal high pressure due to pneumoperitoneum usually provokes protrusion of a hernial sac. Consequently, exploration of the abdominal cavity usually leads to its detection. For these reasons, I think that this technique could be adopted both electively and in emergency situations in case of doubt of the presence of an obturator hernia or bowel obstruction.

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