

Management of Strangulated Abdominal Hernia

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This was a descriptive type of study analyzing emergency management of strangulated abdominal herniae stressing upon time duration of presentation. The objective of the study was to analyze the presentation and to assess the relationship of duration of strangulation with the viability of the contents of the sac. **Methodology:** The study included 60 consecutive patient underwent emergency surgery. All herniae presented with swelling, Abdominal pain and irreducibility. **Results:** An incidence of 4% was noticed for strangulated abdominal hernia. The median age of presentation was 50 years. Most frequent contents were omentum and fat. **Viability of contents is invariably effected by the duration of strangulation.** **Conclusion:** Many of the strangulated hernia present late after the 24 hour and the viability of the contents of the sac is affected by duration of strangulation.

Key words: Strangulated hernia.

A hernia is a protrusion of a sac of peritoneum together with preperitoneal fat or an organ through a congenital or acquired defect in the muscles of the abdominal wall through which they do not pass normally¹. Approximately 75% of all herniae occur in the inguinal region. Fifty percent of herniae are indirect inguinal hernias and 24% are direct inguinal herniae. The vast majority of herniae occur in males. The most common hernia in males and females is the indirect inguinal hernia².

Strangulation literally means to constrict or especially to cut off the blood supply. So a strangulated hernia is the one, in which the blood supply of the contained part has been cut off. Strangulation is the major life-threatening complication of abdominal herniae³. The clinical features of a strangulating hernia may be the first presentation of a hernia in any given patient⁴. It is clear from large series, that pathology intrinsic to the hernia itself or its contents rarely acts alone in the causation of strangulation. Rather the rigid fascial walls through which the hernial sac and the contained intestine protrude are thought to be the major factors in producing strangulation. Often hernias are present chronically for many years and then become strangulated. However, the various factors, which cause strangulation, may be summarized as follows, tight hernial sac neck, adhesions between the hernial contents and sac lining, development of pathology in the incarcerated viscus e.g. a carcinoma or diverticulitis in incarcerated colon, Impaction of faeces in an incarcerated colon and sometimes it is through intestinal edema, or a large bolus passing into the contained intestine, that the rigid confines of the hernia itself can act now as a true obstructing mechanism. Strangulation is the major life threatening complication of abdominal hernias. In strangulation the blood supply to the hernial contents is compromised. The gut mucosal defenses are breached and intestinal bacteria multiply and penetrate through to infect the hernial sac contents. Necrobiosis and gangrene complete a sad and lethal cycle, unless surgery saves the patient. Hypovolemic and septic shock predicate vigorous resuscitation, if surgery is to be successful⁵. The objectives was to see incidence of strangulation in abdominal herniae

and duration of strangulation and its effect on the content of sac and commonly seen contents of the strangulated herniae.

Patients and methods

The study of 60 patients of both male and female of all ages admitted in the North Surgical Ward, Mayo Hospital, Lahore through the Emergency was done during Sep'2000 to March'2002. Whenever a case of strangulated hernia is encountered, a certain treatment protocol is followed in order to reduce the morbidity and mortality associated with the condition. In every case of strangulated hernia the preliminary treatment given irrespective of surgical intervention is as follows. This is similar to the treatment given in any case of acute intestinal obstruction. Patients were also assessed for any concomitant disease along with resuscitation and other management protocol. Surgical therapy is the only rational approach to correction of a strangulated hernia if severe morbidity or mortality is to be obviated. Contents were reduced and there viability checked with the signs, as given in Table 1.

Table 1. Peroperative assessment of viability of gut

	Viable	Non Viable
Color	Dark color becomes lighter, mesentery bleeds if pricked	Dark color remains, no bleeding occurs if the mesentery is pricked
Peritoneum	Shiny	Dull lusterless
Intestinal musculature	Firm, pressure rings may disappear	Flabby thin and friable.
Peristalsis	Peristalsis observed after stimulating gut.	No peristalsis even if gut is stimulated
Pulsation	Mesenteric vessel may be felt	No vessel pulsation is felt

Resection anastomosis is performed when there is no doubt about the non-viability of the whole circumference of the gut.: It is made sure that the point at which the resection of the gut is to be performed is not of doubtful viability i.e. it must be absolutely healthy. So that

anastomosis is performed between two healthy ends. The golden rule which has stood the test of time is 'when in doubt resect. The surgical procedure differs according to the extent of the gangrene of the gut.

After dealing with the sac and its contents, the attention is returned to the formal hernial repair itself. From now onwards, the hernia repair does not differ from that performed in any elective case of hernia repair, with the same technique followed up to the end of the operation.

Results

Among 1350 patients who were admitted in Surgical Unit through emergency during the above-mentioned period (excluding trauma). Strangulated herniae were in 60 patients so incidence of occurrence of 4% was noticed.

The patient with minimum age at presentation was of 28years and with maximum age was of 75 years. The mean age of presentation was 51 years with standard deviation of ±23.40.. Maximum number of patients i.e. 16 presented between 41-60 years. Among the 60 patients who presented with strangulated herniae there was 10 females and 50 males.

It was seen that most patients presented with strangulated inguinal hernia 34/60 i.e., 56% patients. While others were as paraumbilical hernia 12/60 i.e., 20%, epigastric hernia 8/60 i.e. 13%, incisional hernia 2/60 i.e., 3%and umbilical hernia 4/60 i.e., 6%. So all varieties can undergo strangulation, most commonly the inguinal hernia. Peroperatively the most frequent encounter was small gut (ileum) which was 40(66%), omentum was present in 16(26%) patients, fat was present in 4(6%) patients.

Graph 1 Type of hernia(n=60)

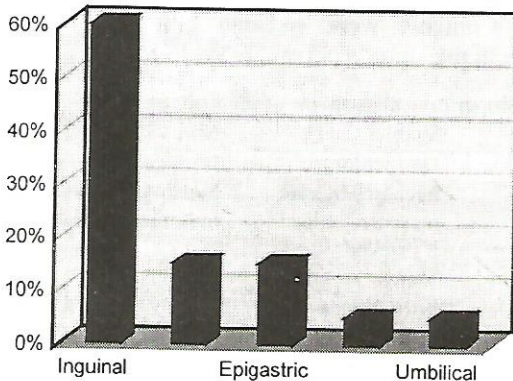


Table 2 Contents of sac (n=60)

Contents	No. of Pts	%age
Small gut	40	66
Omentum	16	26
Fat	4	6
Total	60	100

Table 3 Contents of sac (n=40)

Type	Gut	Omentum	Fat
Inguinal (34)	24	10	-
PUH (12)	3+3 (Mixed)	3+3 (Mixed)	-
Umbilical (4)	-	4	-
Incisional (2)	2	-	-
Epigastric (8)	3	3	2

Duration of hernia and nonviability of gut: It was seen that mean duration of the gut to be nonviable was 18.33 hours (n=15) (SD±6.35) and S.E. was found ±1.64. As duration was increased there was more chances of gut to become nonviable

Type of Procedure: In all cases where gut was nonviable resection and end-to-end anastomosis was done. In no case ileostomy was made, while viable contents were put back in peritoneal cavity. In all cases omentectomy was done where content was omentum.

Hospital Stay: Hospital stay was about 2-3 days in the cases where contents were viable. While in cases where gut was nonviable. Resection anastomosis was done. Mean hospital stay was one week.

Postoperative Complications: Because of appropriate postoperative care only 6(10%) patients developed complication like wound infection, chest infection. This was managed by chest physiotherapy, antibiotics, steam inhalation, nebulization with n/saline or ventolin, wound care

It is important to reduce the duration of irreducibility and presentation. It should be operated with priority. Early surgical intervention decreases the ischaemia of gut and also postoperative morbidity. The patient should be educated to get operated as soon as possible and should not wait till strangulation develops

Discussion

The exact incidence of occurrence of strangulation of abdominal herniae is difficult to establish. However in study, the incidence was 4% (Table 1). Whereas Manzar S reported an incidence of strangulated inguinal 12.72% at Nawabshah^{7,8}.

Western studies described an incidence of 4-5%. Another western authors described an incidence of 2.8%. The cumulative probability using to 4.5% after 2 years^{9,10}.

Strangulation of abdominal hernia may occur at any age. The mean age of presentation in this study was 51 years with standard deviation of ±23.40. Table 2 presents with wide scatter the age range between which most of the patients 59% presented was 40-70 years. Andrew¹¹ reported a sharp rise in incidence of inguinal hernia after 60 years of age with a peak between 70-76 years.

Another study showed age range of maximum incidence between 40-70 year¹². Strangulated abdominal hernia is much more frequent amongst male than female.

In this study out of 60 patients only 12 patients are females. So male: female ratio of 4:1 is noticed. Amongst all types of strangulated abdominal hernia, inguinal herniae are the most common type i.e., 56%

All the patients with para umbilical umbilical herniae were females. The patients with inguinal, incisional, epigastric herniae were male.

The most frequent encountered content was ileum. As a whole it was 66%. According to Raymond Pollock¹³ 70-80% inguinal herniae have the small intestine as their primary component. Other western authors describe a 75% incidence of bowel in strangulated inguinal hernia.

In case of paraumbilical herniae, mixed content i.e., both omentum and gut were found. In umbilical hernia only seen content is omentum while in incisional hernia only gut was found and in epigastric hernia mixed pattern was seen (Table 3)

Gut being the most vital content of the strangulated hernia was present in 40 out of 60 cases and in 13 cases out of 40 it was not viable i.e. 32% (Table 2).

In 8 out of 13 cases (non viable gut) the duration of strangulation was less than 24 hours which is not according to the study of Bowesman²⁹ who described that there is almost nil incidence of viability of gut, if duration of strangulation is less than 24 hours. So postural treatment is not safe method even if the duration is less than 24 hours. Similarly, in 16 cases in which omentectomy was done, 3 cases were those in which omentum was ischaemic. In all cases the duration of strangulation was less than 24 hours. The duration of presentation was very variable, the smallest duration being 2 hours and the longest upto 24 hours. The mean duration of presentation is 19.52 hours. According to Pollak R (1989)¹² delay in presentation and diagnosis is not uncommon ranging from 1-8 days. Many of the cases (30%) in this study also presented late and having duration of strangulation of more than 20 hours and in many cases upto 24 hours. This delayed presentation of strangulated abdominal hernia is well in accordance with our conservative background, in which no consultation is taken from a qualified doctor until and unless the complications occurs. And even then delay is carried out till the viability of the gut becomes compromised.

The most frequent postoperative complications encountered was associated with chest infection. Chest complications were present in 4 patients (4/60 i.e. 6%) in our study. While wound infection was present 2 patient (2/60 i.e., 3%). All of these patients presented late and had non viable contents. Patients with chest infection were old and their age was more than 50 years. None of the patient died whereas Pollock¹² has described an incidence of 30% mortality among those patients who developed postoperative chest complications.

Andrew¹⁷ reported the rate of postoperative septicaemia in non viable intestine to be 37% which is not similar to this study.

Wound infection developed in 3% patients. All these patients had undergone resection of gut. Pollok¹² has noticed wound infection in 9-15% with no resection and upto 40% in one series with infection of gut. The relative low incidence of wound infection in this study might well be due to adherence to strict aseptic measures in emergency conditions including thorough wound washing too. There is a genuine need for mass education and public awareness programmes regarding hernia, because most of our patients have got a conservative social background and they report late. This is especially true for the women. Even when the hernia is strangulated, they report to the doctor when many hours have been elapsed. This converts a simple benign surgical condition into a major life threatening surgical emergency leading to increased morbidity and mortality. It is our duty to tell them, that simple inguinal hernia is a benign condition and they should always get it repaired electively whenever possible, because only early repair may obviate against strangulation—the most disastrous of circumstances, in which not only intestinal integrity but also life itself is threatened.

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