Strangulated external hernias in Kumasi

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Summary

Background: **In our hospital, Komfo Anokye, Kumasi theatre records show that more than 65 per cent of hernia repairs are performed for strangulation. The low level of elective repair may be linked to poverty, ignorance and fear, factors commonly found in a rapidly expanding young city like Kumasi with ever increasing population.**

This paper highlights the morbidity and mortality associated with surgery for strangulated external hernias.

Method: **The details of consecutive adult patients admitted to our emergency ward with a diagnosis of strangulated hernia were recorded. In addition the mode of presentation, hernia type, treatment and the outcome were recorded for each case.**

Results: **Out of 120 strangulated external hernias 76 were indirect, 6 recurrent and 4 direct a total of 86 (71.7%) inguinal hernias. Strangulated femoral hernias were diagnosed in 12 (10 percent)) of the cases. These were all females. Other hernias included 13 (10.8%) para-umbilical and 9(7.5%) of incisional hernias.**

Strangulation occurred in more men (80) than women (40) and 75% of these patients were aged 50 years or below. The most common physical sign for the diagnosis of strangulation was a tender lump at a previous hernia site. One hundred and seventeen patients were operated upon with an over all bowel resection rate of 24.1%. The over-all mortality was 11.8%. For the inguinal hernias, mortality was lower at 6.2% but higher for the incisional hernia at 33%. Apart from hernia type delayed operation after 72 hours increased the need for bowel resection.

Conclusion: **The significant and unacceptable morbidity and mortality associated with surgery for strangulated hernias may be avoided by advocating for mass elective repair of these hernias before strangulation occurred.**

Keywords: ***Strangulated external hernias, Bowel resection rate, Mortality.***

Résumé

Introduction: Dans notre hôpital, Komfo Anokye les dossiers de la sale d'opérations de Kumasi montrent que plus de 65 pour cent des cas de la réparation de l'hernie ont été opérées pour la strangulation. Le niveau bas de la réparation de confort pourrait être attributable à la pauvreté, l'ignorance et peur, facteur les plus courants cites dans une jeune cité qui est rapidement en expansion comme Kumasi avec une population toujours plus grande. Cet article souligne la morbidité et la mortalité associée avec la chirurgie pour l'hernie étranglée externe.

Méthodes: Les détails des patients adultes consécutivement admis dans notre sàlc d'urgence avec un diagnostic de l'hernie étranglée ont été notés. En outrê, la façon de la présentation, type de l'hernic, le traitement et le resultat ont été notés pour chaque cas.

Résultats: Entre 120 cas de hernie étranglées externes, 76 étaient indirects, 6 périodiques, 4 directs, un total de 86 soit 71,7% hernies inguinales. L'hernie étranglée fémorale a été diagnostiqué dans 12 soit 10 pour cent des cas. Elles sont toutes des femmes. Les autres hernies sont 13 soit 10,8% para-ombilical et 9 soit 7,5% de l'hernie incisionale.

La strangulation a eu lieu chez plus des hommes (80) plus que chez des femmes (40) et 75% de ces patients étaient âgés de 50ans ou de moins de 50ans. Le symptôme physique le plus courant pour le diagnostic de la strangulation était une excroissance ou une grosseur trouvée dans le siège de l'hernie précédente. On avait opéré cent dix patients avec le taux global de resection intestinale de 24,1%. Dans l'ensemble, mortalité était en baisse en 6,2% mais plus élevées pour l'hernie incisionale en 33%. Sauf le type de l'hernie de l'intervention chirurgicale tardée après 72 heures a augmenté le besoin pour une résection intestinale.

Conclusion: La morbidité importante et unacceptable et la mortalité ayant rapport avec la chirurgie pour l'hernie étrangleé pourrait être évité tout en plaidant en favour de la réparation de confort collective de ces hernies avant l'arrivée de la strangulation.

Introduction

Strangulated external hernia is a common surgical emergency with potentially life-threatening consequences[1]. In Ghana it is the most common cause of intestinal obstruction[2]. Worldwide strangulated external hernia is the cause of half the cases of intestinal obstruction and accounts for most deaths from this condition[3,4]

Table 1 Age and sex distribution of 120 strangulated external hernia

Age in year	Males	Female	Total	Percentage of 120
19 – 20	4	2	6	5
21 – 30	20	7	27	22.5
31 – 40	31	13	44	36.6
41 – 50	12	8	20	16.6
51 – 60	10	4	14	11.6
61 – 70	3	3	6	5
71 – 80	2	1	3	2.5
80+	–	2	2	1.6
Total	80	40	120	100

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Table 2 Clinical presentation of strangulated external hernias

Clinical features	Number of patients	Percent
Vomiting	62	51.6%
Abdominal pains	40	33.3%
Constipation	20	16.6%
Tender lump	90	75%
Abdominal distention	45	37%
Visible peristalsis	6	5%

This paper reports on the results of a prospective study of 120 unselected consecutive series from the second largest hospital in Ghana. The aim of the study is to review the management of strangulated external hernia with respect to the main presenting symptoms, the resection rate and the mortality of the condition.

Materials and Method

A simple data collection sheet was designed and this was completed by the admitting doctor for each case of strangulated external hernia, admitted to the Casualty Ward of Komfo Anokye Teaching Hospital over a 36-month period from October 1997 to September 2001.

The information recorded included (a) patient characteristics: Age, sex, occupation and residence and (b) hernia characteristics: type and site of hernia, clinical symptoms, duration of symptoms, operative treatment, time interval between admission and operation. Operative findings, bowel viability, resection of bowel and postoperative mortality, were also carefully recorded.

Results

A total of 120 cases were studied. There were eighty men and forty women, giving a ratio of 2 males to 1 female.

1. ***Age incidence:*** Table 1 shows the age incidence of the patients. The condition is common in young adults aged 21 to 41 years who accounted for 75% of the total number of cases. Femoral hernia accounted for strangulation in women over 75 years of age.
2. ***Type and site hernia:*** Of the 120 strangulated hernias studied 76 were indirect, 6 recurrent 4 direct inguinal hernias and 12 were femoral hernias. These groin hernias together constitute 81.7% of all hernias. Groin hernias were more common on the right side with an overall right to left ratio of 2.5:1. There were 13 strangulated para-umbilical hernias 9 in females and 4 in males. All nine strangulated incisional hernias were in females. Seven followed cesarean section and 2 were due to laparatomy for peritonitis.

Table 3 Post-operative mortality following surgical treatment of strangulated external hernias

No.	sex	Age	hernia type	Procedure for	Cause of death
1.	F	80	Right femoral hernia	Small bowel resection	Peritonitis with acute renal failure (7 days)
2.	F	75	Para-Umbilical hernia	Transverse colectomy	Intra-Abdominal Sepsis (5 days) severe hypokaleamia
3.	M	60	Left inguinal hernia	Sigmoid colectomy	Hypovoleamic shock (1 day)
4.	F	75	Para--umbilical hernia	Transverse colectomy omentum excision	Pulmonary odema (1 day)
5.	M	35	Right inguinal hernia	Over 100cm of small bowel resected	Hypovoleamic shock Anuria (2 days)
6.	M	52	Left inguinal hernia	Small bowel resection	Aspiration cardiac arrest 6 hours
7.	M	65	Right inguinal hernia	Limited right Hemi-colectomy	Intra-abdominal sepias pulmonary embolus (6 days)
8.	F	55	Right femoral hernia	Small bowel resection	Bilateral pneumonia Bronchial Asthma (5 days)
9.	F	58	Recurrent incisional hernia	Resection of small and transverse colon division of Adhesions	Acute renal failure (3 days)
10.	M	18	Left inguinal hernia	Small bowel resection	Hypovolaemic shock (1 day)
11.	M	27	Recurrent incisional hernia	Division of Adhesion resection 75cm of small bowel	Intra-abdominal sepsis, Leaking anastomisis SS disease (10 days)

Table 4 Effects duration of symptoms on resection and mortality rates

Duration of illness	No of patients (resections)	Bowel resection rate	Mortality
0 – 12 hrs	19 (2)	10%	0
13 – 23 hrs	41 (9)	21%	9.7%
24 – 47hrs	49 (12)	24%	12.2%
48 – 72 hrs	11 (6)	54%	27.2%

As shown in figure 4, both resection rates and mortality increase with the duration of the illness.

3. ***Sex distribution:*** Out of 86 inguinal hernias 72 were found in males and 14 in females. This gives a male female ratio for strangulated inguinal hernia as 5:1. Femoral hernias were found mostly in women; 2 men and 10 women. The M:F ratio is 1:5.
4. ***Socio-economic background of patients:*** The economic activities of the 120 patients varied widely. Of the 80 men, there were 25 farmers, 6 auto-mechanics, 6 driver-mates, 5 watchmen, 5 construction site laborers, 5 unemployed persons, 4 teachers, 4 students, 2 civil servants and 2 Apostolic church pastors.

Twelve of the 40 females were housewives, 16 farmers, 6 petty traders, 2 seamstress 1 student and 3 unemployed. These patients especially the men are in the lower income group.

5. ***Clinical presentation:*** The common complaints were abdominal pains, vomiting and constipation. In 75% of the patients there was a visible tender lump at the hernia site on examination. Table 2 shows the frequency of the various clinical features in strangulated external hernias. Abdominal pain, abdominal distention, vomiting and tender lump were the main presenting features.

6. ***Morbidity and mortality:*** There were 29 bowel resections and 14 deaths. This gives an over-all resection rate of 24.1% and over-all mortality of 11.8%. Three of the deaths occurred pre-operatively. One was a female patient with a femoral hernia and associated peritonitis that was too ill for surgery. Another patient died of acute renal failure from severe dehydration following a strangulated large right inguinal hernia. A third patient with incisional hernia died from aspiration on the ward. Table 3 summarizes the causes of death in 11 patients. Both morbidity and mortality increase when operation is delayed especially in femoral and incisional hernias. In sixty percent of the patients in this series delay in presentation was directly related to the time it took to mobilise financial resources. Twenty percent were referred from districts outside Kumasi. Transportation arrangement for the sick patients took several hours.

The diagnosis of strangulated femoral and para-umbilical hernia in fat patients with flabby abdominal wall is often missed. This missed diagnosis was the cause of delayed treatment in 15% of the cases. In two elderly female patients strangulated femoral hernias were missdiagnosed as inflamed groin nodes, thereby delaying surgical intervention.

In 5%, of the patients, delay was due to patients' attitude of waiting in the hope that the present attack will subside, as was the case in previous attacks. These patients often arrived in hospital in a poor state.

Discussion

Strangulated external hernias remain a major health problem in developing countries. Over the past 30 years published data from the West African sub--region indicate that the problem may be worsening especially in rural areas[1,2]. Poverty, conflicts and collapsed economies make access to health services even more difficult.

The present series from Kumasi further highlights the problems and the challenges. Strangulated external hernias affects mostly young adults[1,2,3]. Table 1 shows that 75% of patients in this series are aged between 21 – 51 years. In a recent study Harouna[1] et al found that 80% of their patients were less than 45 years old.

Table 5 Hernia type resection rate and mortality in 120 strangulated external hernias

Hernia type	Resection No. of patients	Resection % over-all	Mortality No. of deaths	Mortality % over-all
Inguinal hernia	15	18.7	6	6.2
Femoral hernia	6	50	3	25
Para umbilical hernia	4	30	2	15
Incisional hernia	4	33	3	33
Total	29		14	

In this series, males predominate in strangulated inguinal hernias with a male/female ratio of 5:1. Though in uncomplicated hernia the male to female ratio is 2:1[6,7]. The explanation for the higher prevalence of strangulation in men may be due to the fact that men often engage in heavy manual work.

The persistently increased intra-abdominal pressures may increase the risk of strangulation of often large neglected inguinal hernias.

In this series there were more strangulated indirect inguinal and femoral hernias on the right than on the left with a right to left ratio 2:1 and 5:1. This result may be explained by the fact that uncomplicated indirect inguinal and femoral hernias are more common on the right[6,7].

Morbidity and mortality in strangulated hernia management are related to the danger of missed diagnosis and thus delay in operation[8]. As seen in Table 2, abdominal pains, vomiting and the presence of a tender lump at any of the usual hernia sites should make the recognition of the presence of strangulation easy. Small femoral hernias in elderly women may however be mistaken for inflamed lymph nodes or lipomata with serious consequences (Table 4).

The treatment of strangulated external hernia is operative. The danger is not in the operation but in the delay[9]. This concept was established more than 50 years ago[10]. Delay in operation increases the risk of gangrene requiring bowel resection increasing operative morbidity and mortality. In recent report on the effect of prolonged strangulation on mortality, Harouna et al found that 80% of a case series of strangulated inguinal hernia patients requiring bowel resection have been strangulated for more than 72 hours[1] with a 40% mortality. In this series 117 patients were operated upon. Twenty-nine patients required resection for non-viable bowel. The over-all resection rate was 24.2%.

There were fourteen deaths. This gives an over-all mortality of 11.8% table 4. These figures are consistent with those from other centres in the West African Sub-region[2,3,6,11] but high compared with figures from England[4,12]. The very high mortality of 40% by Harouna et al may indicate an unusual situation.

Femoral hernias have a high mortality because these usually occur in elderly flabby females making diagnosis difficult and outcome unfavourable. The high mortality associated with strangulated incisional hernias mostly following caesarean section cannot be easily explained. The mortality rates from rural hospitals are comparable very little over the past three decades. The effect of strangulation on mortality is striking[1,2,3,4]. It is suggested that elective repair of external hernia is the most effective way to reduce the mortality from (hernia) this condition.

Conclusion

In Kumasi strangulated indirect inguinal hernias cause considerable morbidity. Mortality can be reduced if these hernias are repaired before they strangulate. The case for early elective repair of femoral, para-umbilical and incisional hernias is even stronger as these have higher mortality rate of 25% to above 30% after surgery for strangulation.

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