The diagnosis of femoral hernia

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Summary: The accuracy of diagnosis of femoral hernia in referrals to a district general hospital over a period of 5 years has been studied and related to clinical outcome. A correct diagnosis was made in only 36 of 98 cases (60 urgent, 38 routine) before admission to hospital. A correct pre-operative diagnosis was ultimately made in 85 cases. Four patients, all urgent admissions with incarcerated bowel, died within 30 days of operation. In none of these cases was a correct diagnosis made before admission to hospital. The median length of post-operative stay of urgent admissions was 7 days (range 4–50) when a correct initial diagnosis was made and 10 days (range 4–50) when the initial diagnosis was incorrect ($P = 0.07$, Mann–Whitney test). When strangulated small bowel was found at operation, 70% of those with an incorrect initial diagnosis ($n = 23$) required resection, as compared with 20% of those with a correct initial diagnosis ($n = 10$, $P = 0.014$, χ^2 with Yates' correction).

Femoral hernias are frequently incorrectly diagnosed before hospital admission and this is associated with worsened outcome in urgent cases.

Introduction

Femoral hernias are not uncommon and their diagnosis depends entirely on the recognition of their clinical features. Nevertheless, such hernias are frequently incorrectly diagnosed and this has been well documented in previous studies.^{1–3} These studies focus on the reasons for incorrect diagnosis, especially in the emergency setting. Despite this, the author has treated a number of patients who experienced serious delays in diagnosis of their strangulated femoral hernias. The present day accuracy of diagnosis of femoral hernia has therefore been studied in a series of patients undergoing operation for this condition in a district general hospital.

Patients and methods

The operating theatre records of Salisbury General Infirmary were searched to identify all patients undergoing repair of a femoral hernia between November 1984 and October 1989. Details of these patients and their operations were obtained from the case notes.

The lengths of post-operative stay of correctly and incorrectly diagnosed patients were compared

using the Mann–Whitney test. In patients with strangulated bowel, the association between initial diagnosis and the need for small bowel resection was investigated using the chi-square test with Yates' correction.

Results

A total of 105 femoral hernia repairs were recorded in the Salisbury General Infirmary theatre books over the 5 year period studied. The case notes of 1 patient could not be found and in 6 cases, an operation other than a femoral hernia repair had been performed. These comprised 2 inguinal herniorrhaphies, 2 operations for varicose veins and 2 cases in which no hernia was found at operation. One patient had bilateral repairs during 2 separate admissions so the series consisted of 98 femoral herniorrhaphies in 97 patients in the course of 98 admissions. Sixty of the admissions were urgent (direct general practitioner referrals) and 38 were routine admissions. The median age of the patients was 72 years (range 24–95) and 73 were female.

The initial diagnosis, made by the referring general practitioner in most cases, was correct in 36 cases, incorrect in 54 cases and in 8 cases, no diagnosis other than 'groin lump' had been made. The immediate pre-operative diagnosis, usually made by the operating surgeon, was correct in 85 cases, incorrect in 12 cases and in one case, no pre-operative diagnosis could be found in the notes. The incorrect initial diagnoses are listed in

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Table I. The existence of any kind of groin lump was unrecognized before the admission to hospital of 10 of the 60 urgent cases. The initial diagnoses were upper gastrointestinal bleed (*n* = 5), intestinal obstruction (*n* = 3), in these cases and abdominal pain (*n* = 2). Four patients, all urgent admissions with incarcerated bowel, died within 30 days of operation. A correct diagnosis of femoral hernia was made in none of these cases before admission to hospital.

The median post-operative stay of all the patients whose hernias were initially diagnosed incorrectly was 5 days (range 1–50) as compared with 5 days (range 1–23) for all those whose herniae were correctly diagnosed. Among urgent admissions, the median post-operative stay of patients whose hernias were initially diagnosed incorrectly was 10 days (range 4–50) as compared with 7 days (range 1–23) for those whose herniae were initially correctly diagnosed (*P* = 0.07, Mann–Whitney test). The ages of patients in these 2 groups were closely similar [median 75 years (range 25–95) (initial diagnosis correct), median 76 years (range 40–92) (initial diagnosis incorrect)].

A strangulated abdominal viscus other than omentum was found in the hernia in 36 cases. The viscus was small bowel in all except 3 cases (bladder, transverse colon and fallopian tube). In the 33 cases with small bowel involvement, resection was necessary in 16 of the 23 (70%) incorrectly diagnosed cases as compared with 2 of the 10 (20%) correctly diagnosed cases (χ^2 = 5.05, *P* = 0.014, 1 d.f.). The median post-operative stay of patients whose hernias contained a strangulated viscus (other than omentum) was 7 days (range 3–21) when a correct initial diagnosis was made as compared with 10 days (range 4–50) when the initial diagnosis was incorrect (*P* = 0.11, Mann–Whitney test).

Discussion

Femoral hernia is a relatively common condition which requires only a thorough physical examination for its diagnosis. The inaccurate diagnosis of femoral hernia has been previously shown to be common^{1–3} and the present study shows that this is still the case. The inaccuracy of diagnosis of strangulated cases in this series was not, however, as extreme as that reported in a relatively recent but smaller series.⁴

Under some circumstances it may be difficult to diagnose the nature of a lump in the groin accurately. Indeed, a lump in the femoral region is an accepted problem in surgical differential diagnosis.⁵ Nevertheless, in a sizeable majority of cases it was possible to make an accurate diagnosis before operation. In non-urgent cases, the accurate

Table I Initial incorrect diagnoses in 54 cases of femoral hernia

Diagnosis	n
Inguinal hernia	29
Recurrent inguinal hernia	6
Upper gastrointestinal bleed	5
'Abdominal pain'	4
Intestinal obstruction (unspecified cause)	3
Lymph nodes	3
Lipoma	1
'Cyst'	1
'Neoplastic lump'	1
Bilateral femoral hernias (one side missed)	1

diagnosis of a lump in the groin which is to be explored surgically is unlikely to make a great difference to outcome. This view is supported by the similarity in lengths of post-operative stay of correctly and incorrectly diagnosed routine cases found in this study. In contrast, the median post-operative stay of incorrectly diagnosed urgent cases in this study was longer than that of correctly diagnosed cases although this just failed to reach conventional statistical significance. This probably indicates that those whose initial diagnoses were incorrect suffered increased morbidity. When small bowel was involved, resection was required in a significantly higher proportion of those whose initial diagnosis was incorrect as compared with those whose initial diagnosis was correct.

Among the incorrectly diagnosed urgent cases, there were 10 cases in which no groin lump was found by the doctor first seeing the patient. Upper gastrointestinal bleed was the initial diagnosis in 5 of these cases and was made on the basis of 'coffee grounds' vomiting. This has been the basis of previously reported diagnostic error.⁶ Intestinal obstruction and abdominal pain of unspecified cause comprised the remaining 5 incorrect diagnoses. Incorrect diagnoses of these types are likely to result in delays in surgical treatment. This is particularly so when there is failure to recognize a strangulated femoral hernia as a cause of vomiting and there is a delay in hospital referral. Delays in diagnosis may also occur after admission to hospital.⁷ In this context it should be noted that a strangulated femoral hernia does not always cause abdominal or groin pain.^{2,8}

Femoral hernias are easy to treat by simple surgery which may be performed under local anaesthesia if necessary.^{1,9,10} Elective surgery is ideal and should be attended by negligible mortality and minimal morbidity. Delays in diagnosis of strangulated cases must worsen outcome. It is concluded that accurate pre-operative diagnosis is possible but that initial inaccuracy in diagnosis is

still common. Clinical awareness, skill in physical examination and no special investigations are required for the diagnosis of femoral hernia which should be within the scope of all clinicians.

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