

## Herniography for occult hernia and groin pain

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In a prospective 3-year study herniography was used to assess patients with unexplained groin pain in whom clinical signs were inconclusive. Fifty-two patients were studied. No serious complications were observed. Twenty-two hernias were identified in 18 patients. The positive

herniographic findings were confirmed at operation in 12 patients. Of 34 patients with a negative herniogram, none has developed a hernia. Pain settled spontaneously in 29 patients and five were referred to a pain clinic for further management.

Inguinal hernia occurs in 0.1 per cent of the adult population<sup>1</sup>. In the majority the diagnosis is made on the basis of a reducible mass in the groin with a cough impulse, but some present with groin pain only. Groin pain may occur in disorders of the gastrointestinal, urinary or gonadal system, and in bone or muscle disorders arising particularly from sports injuries. Patients are frequently subjected to numerous radiological or endoscopic procedures in an attempt to establish a diagnosis.

Herniography is claimed<sup>2</sup> to detect occult hernia in patients with unexplained groin pain. A prospective study was performed to assess the value of this technique.

### Patients and methods

Fifty-two patients underwent herniography during a 3-year period. All had a history of groin pain with no clinically apparent hernia. Herniography was performed as an outpatient procedure. A standard herniography technique was employed, injecting 50 ml non-ionic contrast medium into the peritoneal cavity<sup>2-4</sup>. Patients were screened in the prone position on a tilting fluoroscopic table during a Valsalva manoeuvre. Review was continued until the patient underwent surgery, or symptoms resolved.

### Results

Thirty-six men and 16 women aged 20–89 (median 46) years were studied. In 14 patients the groin pain was exacerbated by exercise and in ten it began consequent to a previous hernia repair. Persistent groin pain of unknown origin was present in 28 patients (*Table 1*). Clinical examination revealed no abnormality in 32 patients and a possible cough impulse in 20.

There were no complications following herniography. Two patients, both receiving ionic contrast material in the early part of the study, complained of pain during the procedure; this had resolved completely by the end of the examination. Small amounts of contrast material were injected into the anterior abdominal wall in three patients, into the bowel in three and retroperitoneally in one, with no sequelae.

The results are summarized in *Table 2*. Herniography identified 19 inguinal, two femoral and one obturator hernia in 18 patients. Four patients who complained of symptoms on only one side were found on herniography to have a bilateral hernia. To date, these contralateral hernias have remained asymptomatic. Two of these patients had previously undergone hernia repair while the other two were

Table 1 Details of patients with groin pain

	No. of patients	Sex ratio (M:F)	Median age (years)
Continuous pain	28	17:11	55 (20–89)
Pain on exercise	14	12:2	35 (23–47)
Pain and suspected recurrent hernia	10	7:3	54 (39–70)
Total	52	36:16	46 (20–89)

Values in parentheses are ranges

Table 2 Herniographic findings

	Hernia	No hernia	Total
Continuous pain	13	15	28
Pain on exercise	2	12	14
Pain and suspected recurrent hernia	3	7	10
Total	18*	34	52

\*Eighteen patients had 22 hernias; the contralateral asymptomatic hernia is excluded

suffering continuous pain at rest. Diffuse peritoneal bulging was seen in nine patients.

Only seven of the hernias identified were associated with a possible cough impulse, while the remaining 15 showed no clinical abnormality. Only two of the 14 patients presenting with pain after or during exercise were shown to have a positive herniogram.

Positive herniographic findings were confirmed at operation in 12 patients. In keeping with other studies<sup>4</sup> there were no false-positive herniographic diagnoses. Four patients are awaiting operation and a further two have declined surgery. One patient presenting with a possible cough impulse and a negative herniogram subsequently underwent surgical exploration which revealed a lipoma of the spermatic cord and no evidence of a hernia sac. At follow-up all 12 patients who underwent hernia repair were pain-free.

None of the 34 patients with a negative herniogram has developed a hernia. In subsequent review at follow-up of 6 months to 3 years pain has settled spontaneously in 29 of these 34 patients. None of these patients was given specific advice regarding weight-lifting or exercise. The remaining five patients were believed to be suffering from musculoskeletal pain and were referred to a pain clinic for further management; four responded to local anaesthetic injection and one has persistent pain despite several modes of treatment.

## Discussion

The management of groin pain with no detectable hernia presents a diagnostic dilemma. Herniography, first described in Canada<sup>5</sup> in 1967, has been used infrequently in Europe except in Scandinavia<sup>1</sup>, as it has been shown<sup>2</sup> to be an inappropriate investigation in the evaluation of clinically apparent hernias. The purpose of the present study was to assess the value of the technique in patients complaining of groin pain but in whom no clinical findings of hernia could be established.

Herniography revealed that 12 of 14 patients presenting with pain related to exercise did not have a hernia, implying that in the majority of patients presenting in this way the pain was musculoskeletal in origin. The policy of routinely exploring the groin in such young athletes<sup>6</sup> must be questioned. Herniography may be a more appropriate investigation in these circumstances, surgery being reserved for those in whom an abnormality is demonstrated.

The correlation between a positive cough impulse and an underlying hernia appears to be poor, with only one-third of patients with a cough impulse demonstrating a hernia.

Herniography was performed in all patients on an outpatient basis. Complications of the procedure are reported to occur in 5-8 per cent of cases, most commonly involving puncture of the bowel wall (usually small bowel), blood vessels or retroperitoneal organs<sup>5</sup>. In the present series the three patients with inadvertent puncture of the bowel suffered no sequelae. The importance of using non-ionic

contrast material<sup>7</sup> is highlighted by the finding in the present study that pain occurred in two patients in whom ionic contrast agent was injected.

Herniography is a simple, safe and sensitive technique. Its use in patients with unexplained groin pain and suspected recurrence of hernia, but inconclusive clinical signs, is recommended, avoiding the need for unnecessary operation<sup>2</sup>.

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