LEADING ARTICLE

Unusual groin swellings

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It is important to remember that a swelling in the groin may be part of a generalized disease or may arise from a structure peculiar to the region. It is therefore pertinent in patients presenting with swellings in the groin always to examine the groin in conjunction with the rest of the body and not in isolation. Careful examination of the patient's axilla, neck and abdomen will indicate whether or not the swelling is part of a widely distributed disorder, for example, lymphoma or leukaemia or an infection.

The groin is an area around the flexure crease of the hip which comprises part of the lower abdominal wall including the inguinal canal and upper part of the thigh and part of the perineum. The main structures present are the skin, subcutaneous tissue, lymph nodes, femoral blood vessels, long saphenous veins and the inguinal and femoral canals. The lymph nodes drain the perineum, perianal area, lower abdominal wall and the lower limb. Infection or tumour in any of these regions may produce enlargement of the inguinal lymph nodes.

Swelling of the skin

Any skin swelling can be found in the groin. The most common are lipomata which are superficial and lobulated. They are often present for many years, irreducible and do not have a cough impulse. When present around the femoral canal they can easily be mistaken for an irreducible femoral hernia. Neurofibromata, sebaceous cysts, dermoid cysts and pilonidal cysts can all occur in this region, and if there is any doubt about the diagnosis, an excision biopsy should be performed. Any connective tissue tumour may present in the groin. Angiomatous malformations are rare but do occur (Schneider, 1980). Usually they are identified by their colour and warmth. Neurofibromata are usually multiple, occurring over most of the body and may be associated with café au lait pigmentation.

Blood vessel abnormalities

A pulsatile swelling in the groin almost certainly means a femoral artery aneurysm. The femoral artery is superficial in the groin and can be felt just under the midpoint of the inguinal ligament. The important diagnostic feature of aneurysms is that they are pulsatile in all directions and not just in one plane. Auscultation frequently reveals a murmur. Femoral aneurysms may occur as a unilateral swelling but are often bilateral and may be part of generalized arteriosclerotic disease of the major blood vessels. Merchant, Cafferate and Depalma (1981) recently reported a group of three elderly men in whom a hernia and an aneurysm progressed synchronously. The symptomatic changes occurring in the groin herniae detracted attention from the recognition of progressive changes in concomitant abdominal aortic aneurysms. We have recently seen a ruptured aortic aneurysm in a 67-year-old man diagnosed initially as an irreducible inguinal hernia by the attending general practitioner, who failed to note the large expansile mass in the abdomen.

Symptoms occurring in previously longstanding hernias may be related to increased intra-abdominal pressure. In addition, small chronic leaks into the retroperitoneum can cause neuritic symptoms relating to groin hernias (Merchant *et al.*, 1981). There may indeed be a biochemical association between acquired groin hernias in elderly men and abdominal aortic aneurysms. There are reported associations between defects in fascial integrity and collagen in older men, especially smokers, who may develop late inguinal herniation. Biochemical and ultrastructural evidence of collagen deficiency in the fascia of the abdominal wall has been obtained in these patients (Wagh *et al.*, 1974; Read and Cannon, 1981). At the same time, as pointed out by Peacock and Van Winkel (1976) patients with aneurysms probably have a connective tissue abnormality. There is a loss

of the normal cross-linked collagen and elastin in the medial layer of the vessel wall primarily in the vulnerable abdominal aorta. This loss is related either to inhibition of collagen synthesis, excessive collagenolysis or a combination of the two. Busuttil, Abou-Zamzam and Machleder (1980) postulated that such a deficit of aortic wall collagen may be the cause of aneurysmal expansion. They compared collagenase activity in the walls of aneurysms with that in patients with occlusive disease and found increased collagenase activity which correlated directly with the size of the aneurysm. The highest values were found in ruptured aneurysms.

Another pitfall in diagnosis is femoral or obturator neuropathy which can mimic groin pain due to a hernia. The mechanism of neuropathy is retroperitoneal bleeding which may also occur in coagulation disorders (Willbanks and Fuller, 1973). Pressure within the relatively closed confines around the femoral nerve as it crosses the iliac fascia can provoke severe symptoms.

Saphena varix

The saphena varix, a dilated saccular varicose swelling, which arises from the proximal end of the long saphenous vein can present in many ways. The most confusing manner is as a reducible swelling in the groin situated in the femoral canal region. A cough impulse may be elicited and the swelling disappears when the patient lies down. Often there is no other evidence of varicosity in the legs. Diagnosis can be confused with hernia, particularly if the varix is thrombosed, and presents as an 'irreducible femoral hernia'.

The presence of a saphena varix is usually confirmed by squeezing the thigh and watching the swelling distend with venous blood. A fluid thrill can be felt if the long saphenous vein is tapped in the limb. The cough impulse produced in the varix is caused by retrograde flow of venous blood from the abdominal veins to the femoral vein, through the incompetent saphenofemoral junction. Finger pressure over the saphenofemoral junction will reduce and may abolish the swelling, although it usually fills from below. Treatment of the saphena varix is surgical disconnection and ligation of the saphenofemoral junction.

Lymph nodes

Lymph node swellings are usually multiple, discrete and kidney-shaped. They are commonly associated with infection in the region they drain. Septic spots in the feet, legs, perineum and pudendum will produce reactive hyperplasia of the regional lymph nodes. In some cases necrosis and breakdown of the lymph node occurs and an abscess develops. This is

characterized by a tender fluctuant swelling in the groin that eventually points and discharges pus. Venereal diseases such as lymphogranuloma inguinale and syphilis may produce marked inguinal lymphadenopathy. Secondary spread of malignancy, for example, malignant melanoma from sites in the lower limb may present as enlargement of lymph nodes in the groin. The anal canal and pudendum also drain to these nodes, so a full examination of the lymph node drainage area is essential if a carcinoma of the anus or vulva is not to be missed.

Occasionally malignant lymphoma and other reticuloses may arise in the inguinal lymph nodes. These conditions are characterized by mobile discrete, rubbery glands and as mentioned above, are part of a systemic disease. Nodes in the axilla or cervical areas should be biopsied in patients with disseminated disease whenever possible rather than the normal inguinal lymph node which often shows marked and widespread cellular variation.

Hernias

By far the commonest cause of swelling in the groin is herniation of abdominal viscera through the inguinal or femoral canals. Inguinal hernia is four to five times more common than femoral hernia. Inguinal hernia is 20 times more common in men than in women and 80% are indirect. Omentum, colon and small bowel are the most frequent organs to be found in the hernial sacs although bladder, ovary and fallopian tube (Dagget, 1925), Meckel's (Castelden, 1970) and even stomach (Nagendran, 1977) may be found. One reported case of a gastric-scrotal hernia involved a 62-year-old man admitted to Veterans Administration Hospital, Alabama in 1975. His complaint was that the swelling in his groin got bigger every time he ate. Barium meal showed an enormous stomach, with the antrum and distal half of the stomach caught in the hernia sac. Simple reduction and repair of the hernia resolved the problem (Nagendran, 1977).

More perplexing diagnostically was a recent case presented by Thomas, Vowels and Williamson (1982) from Bristol of an 80-year-old man with a tender lump in the right groin, raised temperature and evidence of peritonism in the right iliac fossa. A diagnosis of a strangulated right inguinal hernia was made and the patient submitted to an operation. On opening the sac an acutely inflamed appendix was found. Appendicectomy and repair of the hernia was performed and the patient made an uneventful recovery. In reviewing the number of cases of appendicitis in external hernia it was noted that all patients made a good recovery following surgery although previous reports suggesting a mortality of 14–30% have been published (Carey, 1967; Gray,

1910). This rare condition is thus potentially serious and an awareness of its existence is vital to avoid any delay in management that could militate against a rapid and uneventful recovery.

Femoral hernias are more than twice as common in women than in men because of the wider femoral canal in the female. These hernias are more likely to strangulate because of the inelastic boundaries of the femoral opening. A femoral hernia appears below and lateral to the pubic tubercle. The sac is usually retort shaped and enlarges upward over the inguinal ligament but the position of the neck is always constant. As with inguinal hernias, femoral hernias may contain any of the organs of the abdomen, ranging from simple omentum to strangulation of a Meckel's diverticulum (Perlman, Hoover and Safer, 1980). In the case reported in this journal (Cade and Lane, 1984) the stomach was incarcerated in a femoral hernial sac resulting in necrosis of the anterior wall of the stomach.

Testicular swelling

An undescended testis or ectopic testis may be found in the groin. The finding can be confirmed by examination of the scrotum and noting the absent ipsilateral testis. Testes found in this site are often tender and smaller than the descended variety. Ectopic testes are usually found in the superficial inguinal region, whereas an undescended testis frequently lies inside the inguinal canal and can disappear when the muscles of the abdominal wall are contracted. The scrotum should be examined in every patient with a lump in the groin. Recently a 26-year-old man was admitted to our ward with bilateral groin swellings which were ectopic testes. Examination revealed incomplete development of the scrotum despite normal secondary sexual characteristics.

The phenomenon of the 'third testis' usually means a hydrocele of the processus vaginalis and this may be difficult to distinguish from an inguinal hernia. Hydroceles can usually be diagnosed by their translucency.

Psoas abscess

Psoas abscesses are rare. In the past they were often associated with a chronic tubercular abscess of the spine when pus tracked down the psoas sheath to present as a swelling in the groin. The main characteristic of this swelling is that it can be felt below and above the inguinal ligament and is fluctuant between the two points. Before drainage, radiological examination of the chest and thoracolumbar spine is indicated. More recently, psoas abscess secondary to Crohn's disease has been reported (Ramus and Shorey, 1975).

Peritoneal spread

Malignant ascites or indeed frank tumour arising from an intraperitoneal organ can present as a swelling in the groin due to peritoneal spread down the inguinal canal (patent processus vaginalis). This is usually a manifestation of extensive malignancy and the patient is ill.

Retroperitoneal spread of blood, serosanguinous fluid or infection rarely presents as an inguinal swelling. In the case reported in this journal the underlying pathology was an acute haemorrhagic pancreatitis (Dennison and Royle, 1984).

Summary

It is important to realise that the groin is part of the body as a whole and should not be examined in isolation. The two case reports published in this volume clearly exemplify this point and demonstrate the need for clinicians to take a thorough history and examination in all patients with inguinal pathology.

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