difference cannot be considered proved in a retrospective study such as this, but clinical studies at present going forward (J. A. Tulloch, 1962, unpublished) should elucidate the problem.

Summary

Among 1,100 necropsy records, from August, 1959, to November, 1961, reviewed, 273 cases of renal disease were found.

Chronic pyelonephritis was the most common disease encountered. An attempt has been made to divide this into a primary and a secondary group and to show the difference in clinical presentation and mode of death.

The nephrotic syndrome in Africans is discussed, and especially its relation to chronic pyelonephritis.

Other types of renal disease encountered, notably chronic glomerulonephritis and amyloid disease, are discussed briefly.

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References

Davies, J. N. P. (1949). *E. Afr. med. J.*, **26**, 76.
—— (1961). *Lab. Invest.*, **10**, 205.
Raper, A. B. (1953). *E. Afr. med. J.*, **30**, 49.
Shaper, A. G., and Shaper, L. (1958). Ibid., **35**, 647.
Williams, A. W. (1944). Ibid., **21**, 328, 368.
Wright, D. H. (1961). Ibid., **38**, 441.

Medical Memoranda

Rupture of the Rectus Abdominis Muscle

This uncommon condition presents some difficulty in diagnosis. It is not always thought of in the differential diagnosis of abdominal pain, and has been mistaken for almost every variety of abdominal catastrophe. Of 101 cases reviewed by Schafer (1953), only 22 were diagnosed correctly.

The aetiology is well recognized. The condition is commonest in the elderly, particularly when debilitated or suffering from infectious disease. In these conditions the muscle ruptures when subjected to normal strain, such as coughing or sitting up. It also occurs in the late months of pregnancy and occasionally in young subjects owing to direct or indirect violence.

Rupture of the muscle is usually in the lower half. There may be an associated tearing of the inferior epigastric artery or vein, producing a vast haematoma. The posterior rectus sheath is absent in the lower part, and the haematoma lying on the transversalis fascia and deep to the abdominal musculature spreads laterally, medially, and downwards behind the pubis. It is not restricted to the confines of the rectus sheath. If the muscle rupture damages only smaller vessels, the haematoma may not be palpable.

Pain is always present, often severe, and there may be nausea and vomiting. A history of injury, sudden muscular effort, severe cough, or debility may be obtained. The abdomen is extremely tender over the site of the rupture and a mass may be palpable. The picture is one of intra-abdominal catastrophe. It is commonly confused with acute appendicitis, appendix abscess, or twisted ovarian cyst. It has been diagnosed as most other forms of acute abdomen, including strangulated hernia, and is indistinguishable from a strangulated Spigelian hernia.

The useful test of sitting the patient up to tense the abdominal muscles is often not possible owing to pain. Also the haematoma, being posterior to the abdominal musculature and not confined by rectus sheath, is movable from side to side, but not in a vertical plane. Ecchymosis below the umbilicus on the affected side occurs only in late cases. The right rectus abdominis ruptures more frequently than the left.

If there is no palpable swelling, conservative treatment with rest and local heat is said to lead to resolution. However, it is in just such cases that the diagnosis may be in doubt and it is usually safer to incise over the affected rectus.

Case History

On February 22, 1959, a woman aged 74 was admitted to hospital complaining of lower abdominal pain. For some weeks she had had discomfort in the lower abdomen. Two days before admission this became worse, with pain on coughing, and a swelling appeared in the lower abdomen. Bowels and micturition were normal and there was no history of vaginal bleeding or discharge. She suffered from chronic bronchitis, and on admission had a severe cough.

On examination she was in pain and had signs of chronic bronchitis. In the abdomen there was a mass 12 cm. in diameter rising up out of the pelvis to the left of the midline. It was firm and tender with easily discernible borders above and on either side. Below, however, it appeared to pass behind the pubis into the pelvis. It was mobile laterally but not vertically. Rectal examination revealed nothing abnormal.

A diagnosis of twisted ovarian cyst was made and the patient was prepared for laparotomy. A left lower paramedian incision showed some bruising in the subcutaneous fat and the sheath of the left rectus muscle had a bluish tinge. On opening the sheath dark blood clot emerged; 12 oz. (340 ml.) of clot was evacuated. The muscle was found to be ruptured 2 in. (5 cm.) above the pubis. The haematoma had passed downwards behind the pubis, pushing the peritoneum back. No large bleeding-point was found. The incision was closed with drainage.

Post-operatively the patient did well at first, but on the fifth day had a myocardial infarct. This was followed by left lower lobe collapse and heart failure. She died on the fourteenth post-operative day.

Post-mortem examination confirmed myocardial infaction. Histology on the ruptured muscle showed chronic inflammatory changes. There was extensive recent necrosis of muscle with haemorrhage into the area. No disease of muscle was found and the blood vessels appeared normal.

Comment

The above case is typical of the condition. The predisposing factors were old age and severe cough due to chronic bronchitis. The main rupture occurred with sudden pain during a bout of coughing two days before admission. The swelling was not confined to the rectus sheath but extended well beyond it to either side and below. The misdiagnosis of twisted ovarian cyst is well known. If a ruptured rectus abdominis muscle is borne in mind the abdominal incision may be placed accordingly.

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A. G. Horsburgh, M.B., F.R.C.S.,
Senior Surgical Registrar, Westminster Hospital, London

Reference

Schafer, C. S. (1953). *Amer. J. Surg.*, **86**, 157.