
بسم الله الرحمن الرحيم

Arterial Disorders II

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Abdominal aortic aneurysm

- *It refers to dilatation of abdominal aorta.*
- *95% are due to atherosclerosis.*
- *95% occur below the renal arteries.*

Clinical Features

Asymptomatic aneurysms

- *Found incidentally.*
- *In the presence of a pulsatile mass, if symptoms cannot be reasonably explained by another lesion, they must be assumed to be due to aneurysm.*

Symptomatic aneurysms

- *Minor symptoms, eg back pain & abdominal pain.*
- *Symptoms due to thrombosis or release of emboli, eg ischemia of toes.*
- *Sudden, severe symptoms when they expand & rupture.*

Ruptured abdominal aneurysm

- *Rupture can occur anteriorly into the peritoneal cavity (20%) or posteriorly into the retroperitoneal space (80%):*
- *Anterior rupture results in free bleeding into the peritoneal cavity;*
  - *death before the patient can reach hospital, or*
  - *prolonged period of hypotension & shock.*

- *Posterior rupture produces a retroperitoneal hematoma;*
  - *There is sudden, severe back pain, accompanied in some cases by a brief loss of consciousness.*
  - *A brief period when a combination of moderate hypotension & resistance of the retroperitoneal tissues stops the hemorrhage; the patient remains conscious, but in severe pain.*
  - *Femoral pulses in one or both groins may be diminished or absent.*
  - *A pulsatile mass is palpable in the abdomen.*
  - *Signs of shock.*

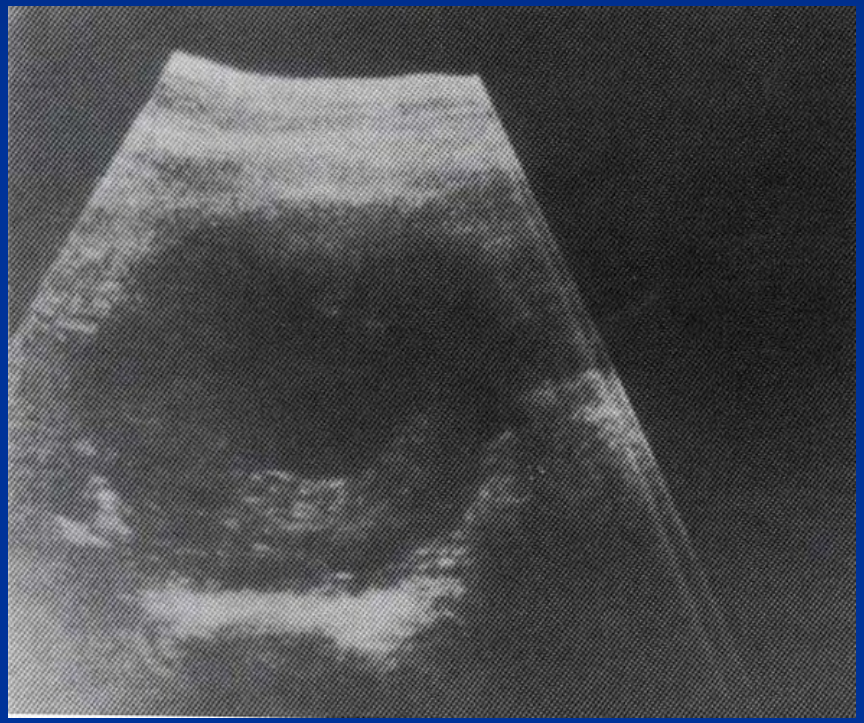
Investigations

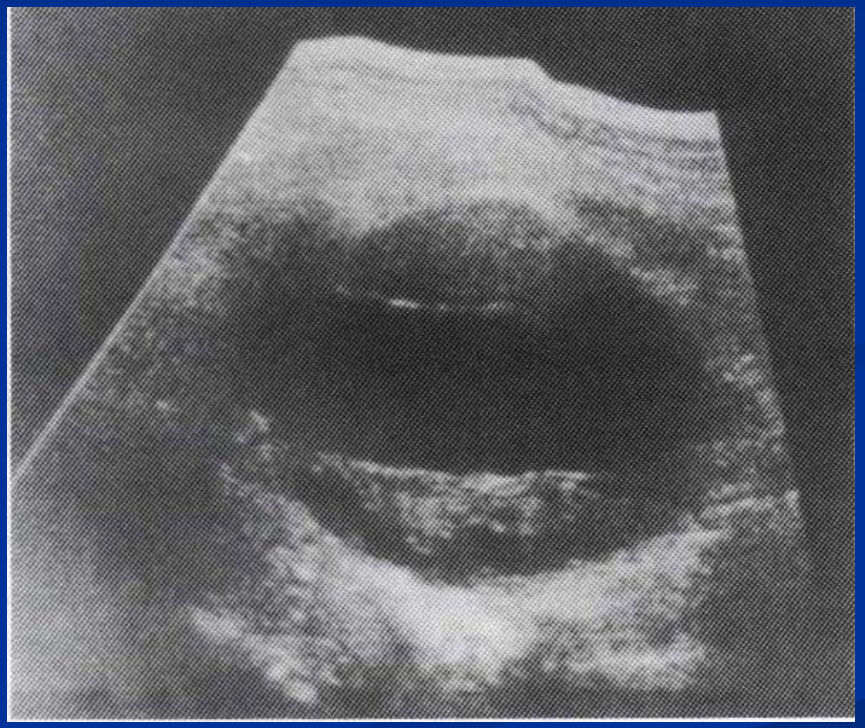
General

1. *Full blood count, Hb, & ESR.*
2. *Blood & urine analysis for diabetes.*
3. *Blood group & cross-match.*
4. *Liver function tests, blood lipids, electrolytes, urea & creatinine.*
5. *ECG & chest radiography.*

Specific

1. *Ultrasonography of the abdomen to assess aneurysm diameter.*
2. *Aortography is useful in delineating the proximal & distal extent of the aneurysm before surgery.*
3. *CT &/or magnetic resonance imaging.*





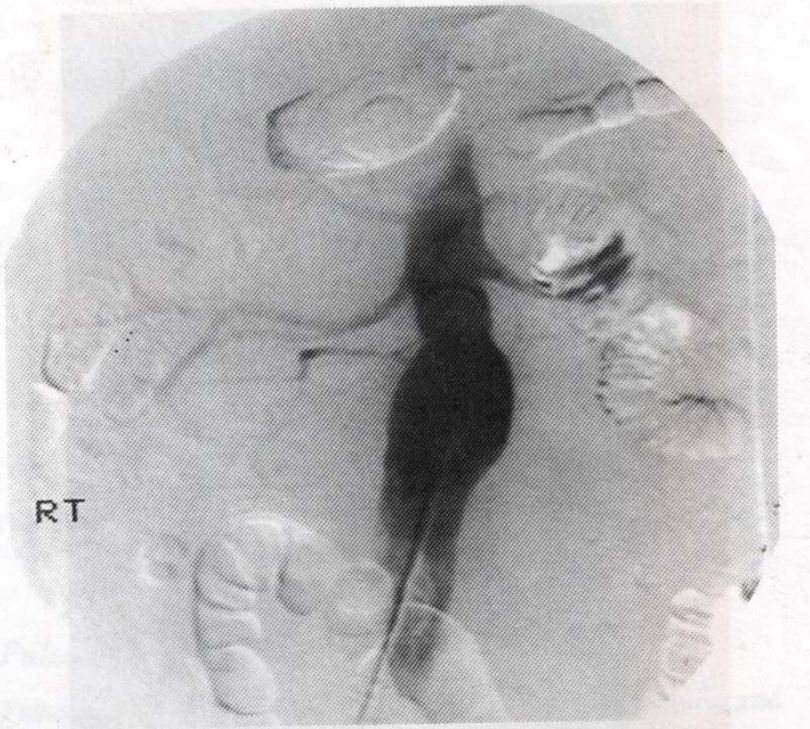


Fig. 15.49 Angiogram of abdominal aortic aneurysm. The neck of the aneurysm is inferior to the renal arteries.

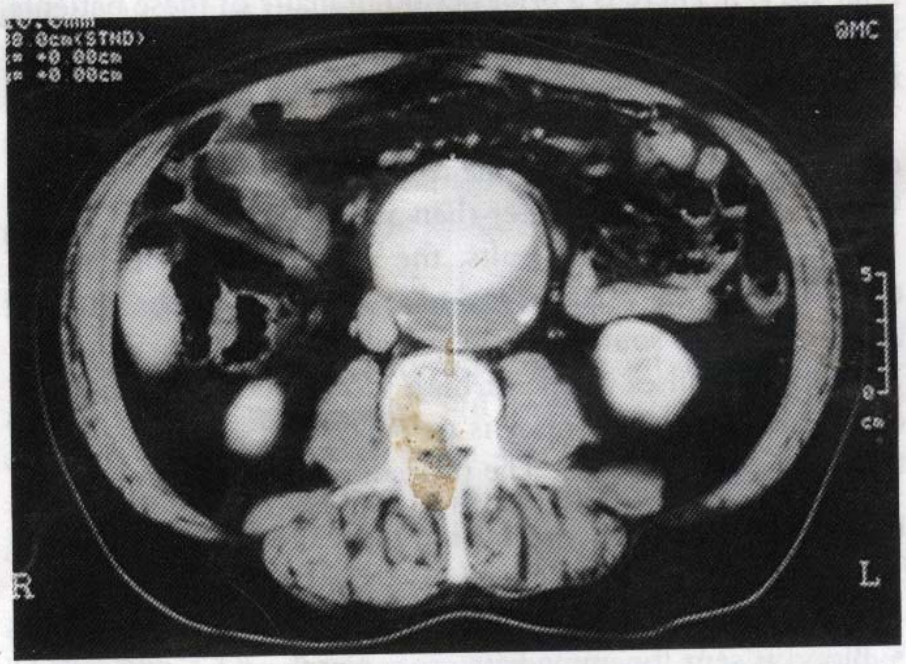


Fig. 15.51 Computerised tomogram of abdomen showing an aortic aneurysm. Blood flowing through the thrombus-containing sac is enhanced with contrast agent and appears white.

Treatment

Resuscitation

1. *Two good IV infusion lines & a CVP line.*
2. *Immediate cross-match of 8 units of blood.*
3. *Infusion of saline, or plasma-expander, to raise SBP to approx. 100 mmHg.*
4. *Urinary catheterisation.*
5. *If the patient appears to be stable;*
    1. *the operation may be delayed*
    2. *but the patient should still be transferred immediately to the operation theatre.*

Surgery

Indications

1. *Symptomatic aneurysm*
2. *Asymptomatic aneurysm if over 5.5 cm in diameter on ultrasound.*

Procedures

1. *Open surgical procedure*
    1. *End-to-end graft suture inside the aneurysm sac.*
    2. *Aorto-bi-iliac or aorto-bi-femoral bypass (when the iliac vessels are also involved with dilatation or severe atheroma).*
2. *Endoluminal stent-graft procedure*

    Aorta is accessed via the common femoral arteries, which are exposed surgically. Under radiological control, a delivery system is guided up into the aorta & a stent-graft placed within the aortic sac.

Inlay technique of AAA repair

Postoperative complications

1. *Respiratory complication, eg lower lobe consolidation, atelectasis & shock lung.*
2. *Hemorrhage.*
3. *Colonic ischemia & renal failure.*
4. *Infection of the graft.*
5. *Sexual dysfunction & spinal cord ischemia.*
6. *Aortoduodenal fistula*

Arteriovenous fistula (AVF)

- *It refers to a communication between an artery & a vein (or veins).*

Etiology

1. *Congenital malformation.*
2. *Acquired by the trauma of a penetrating wound or a sharp blow.*
3. *Created surgically in the arms or legs of patients undergoing renal dialysis.*

Patho-physiology

1. *Arterial blood flow causes arterialization of vein; veins become dilated, tortuous & thick walled.*
2. *Increased venous return & venous pressure results in an increase in pulse rate & cardiac output Ô Left ventricular enlargement & later, cardiac failure occur.*
3. *A congenital fistula in the young may cause overgrowth of a limb.*
4. *In the leg, indolent ulcers may result from relative ischemia below the short circuit.*

Clinical features

1. *Pulsatile swelling, which exhibit thrill & a buzzing continuous bruit.*
2. *Dilated veins may be seen, in which there is a rapid blood flow.*
3. *Pressure on the artery proximal to the fistula causes the swelling to diminish in size, the thrill & bruit to cease, the pulse rate to fall (known as Nicoladoni's or Branham's sign), & the pulse pressure to return to normal.*

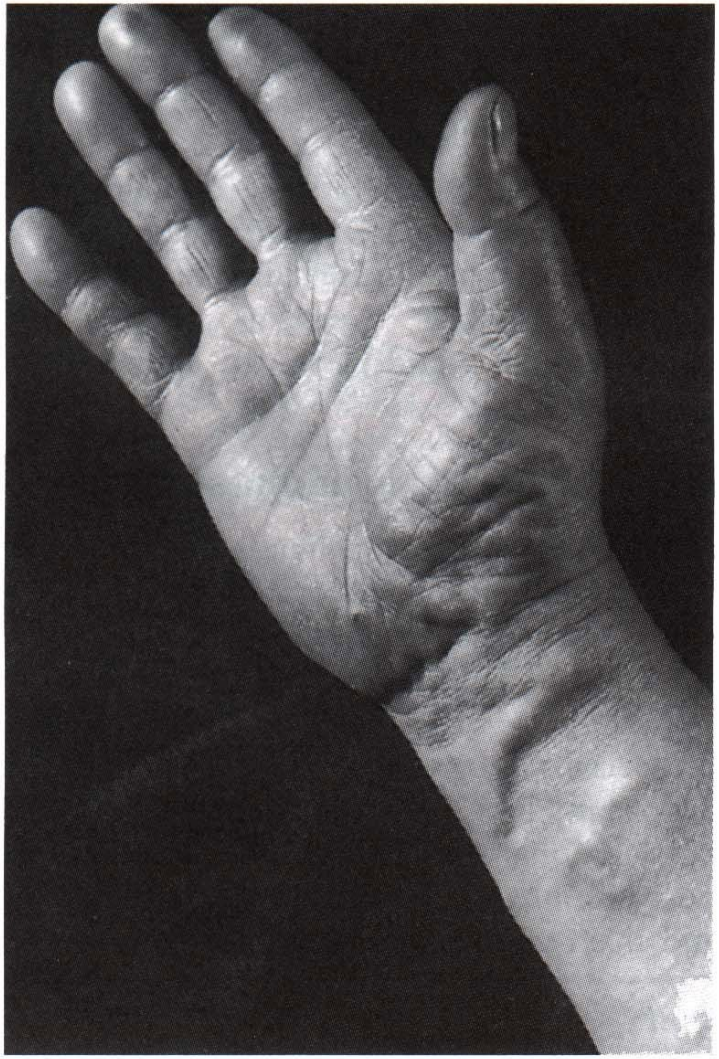


Fig. 15.56 Post-traumatic arteriovenous aneurysm at the wrist. Note the prominent (varicose) arterialised veins.

Investigations

- *Arteriography.*

Treatment

1. *Embolisation by the radiologist.*
2. *Excision (indicated for severe deformity or recurrent hemorrhage).*
3. *Acquired lesions may be repaired by suture, any intervening sac being excised; failing this, quadruple ligation or bypass graft may be required.*

Thank you!