

Arterial Disorders II



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- A middle aged man is found to have a small pulsating mass at the level of the umbilicus during a routine abdominal examination.
- What is the diagnosis?

Abdominal aortic aneurysm

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.*

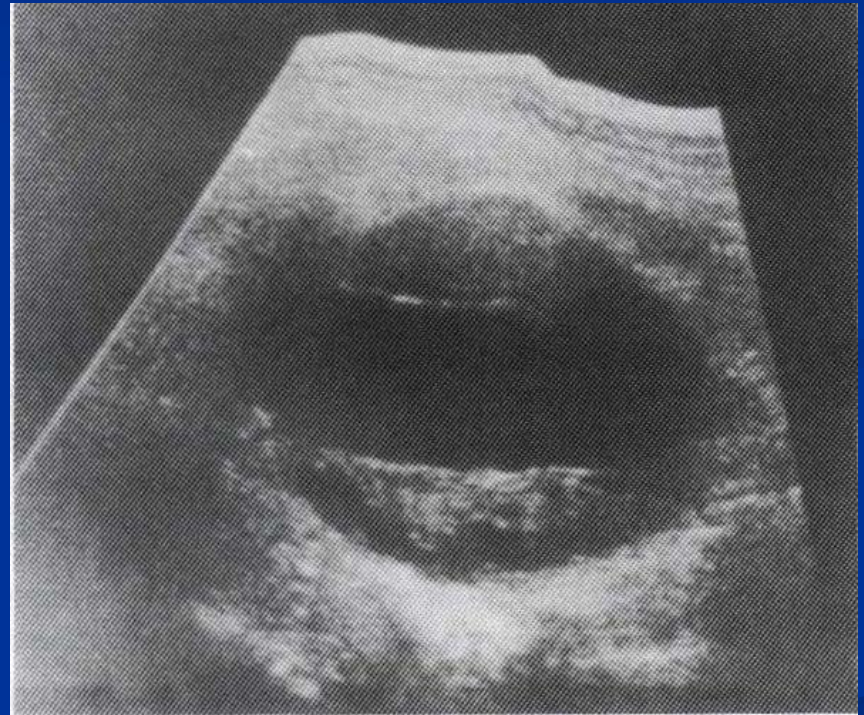
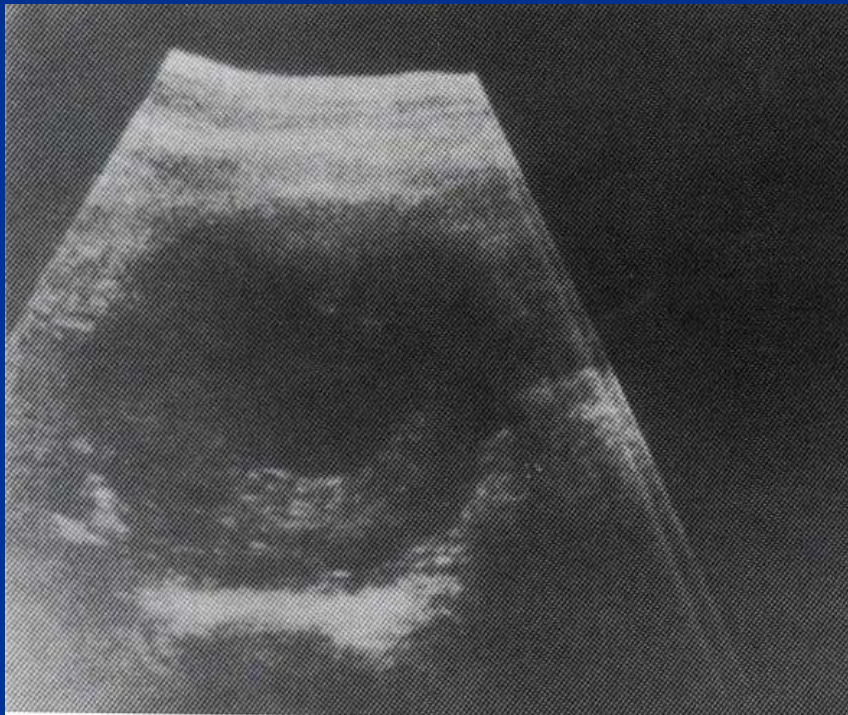
Investigations

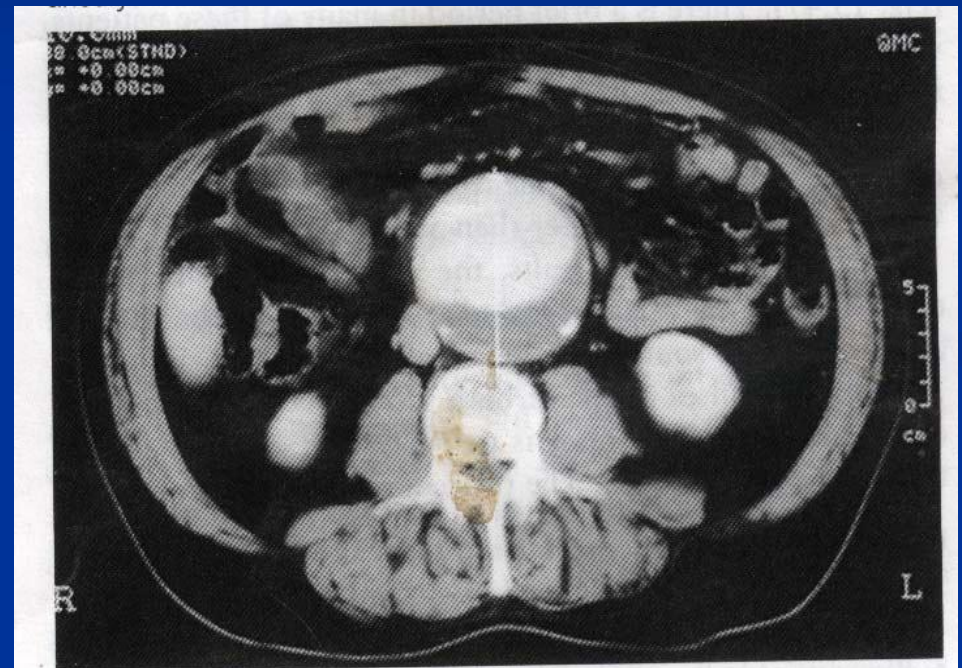
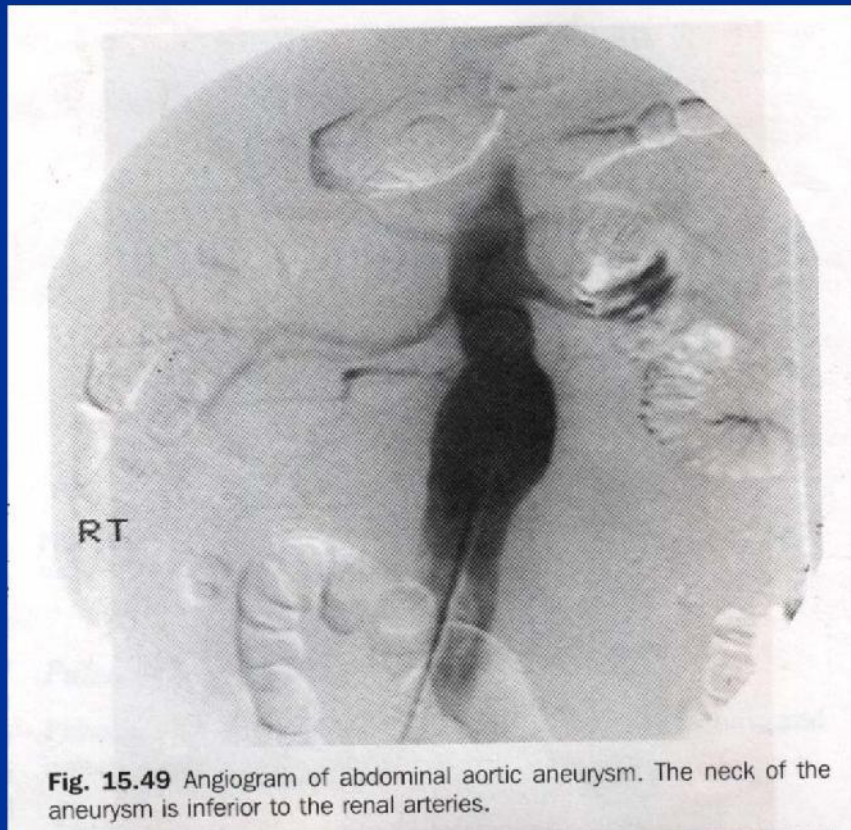
General

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.*





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

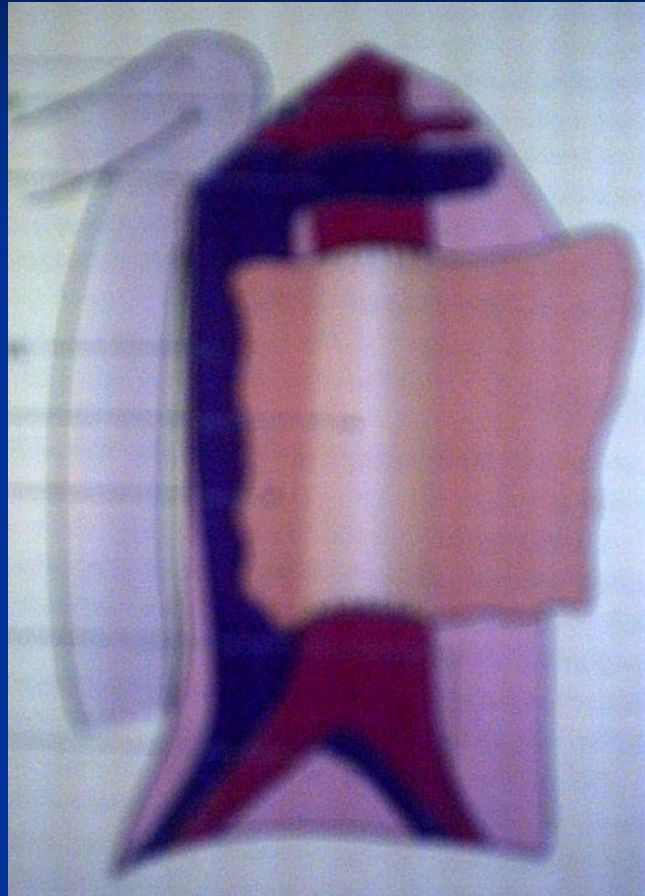
1. Open surgical procedure

- 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*

■ What is the best initial test to establish the diagnosis of abdominal aortic aneurysm?

- A. Aortography
- B. Ultrasound
- C. Computed tomography (CT)
- D. Magnetic resonance imaging (MRI)
- E. Plain films of the abdomen

Answer: B

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 → 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.*

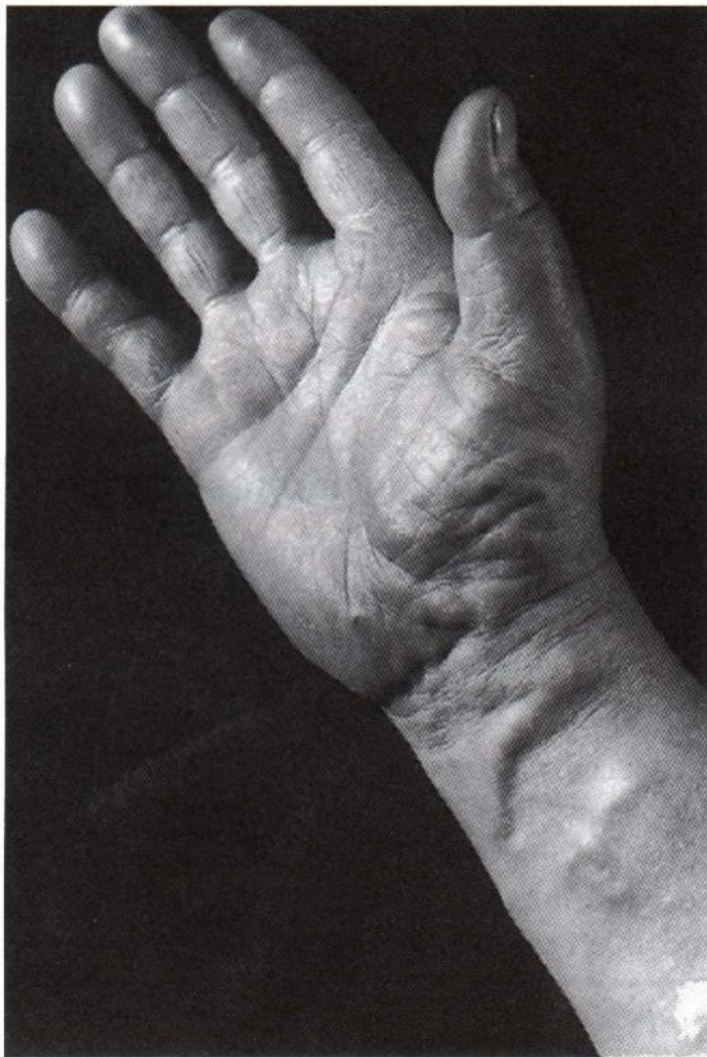


Fig. 15.56 Post-traumatic arteriovenous aneurysm at the wrist. Note the prominent (varicose) arterialised veins.

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!