

Respiratory Tract

(i) Lung Biopsy:

- A needle is inserted directly into the lung or pleural mass and tissue taken for microbiological or histological analysis.
- The procedure may be performed under fluoroscopy or CT.

(ii) Pleural Fluid Aspiration:

- Ultrasound is effective in diagnosing pleural fluid.
- Even small quantities can be visualised & aspirate for analysis.

(iii) Empyema Drainage:

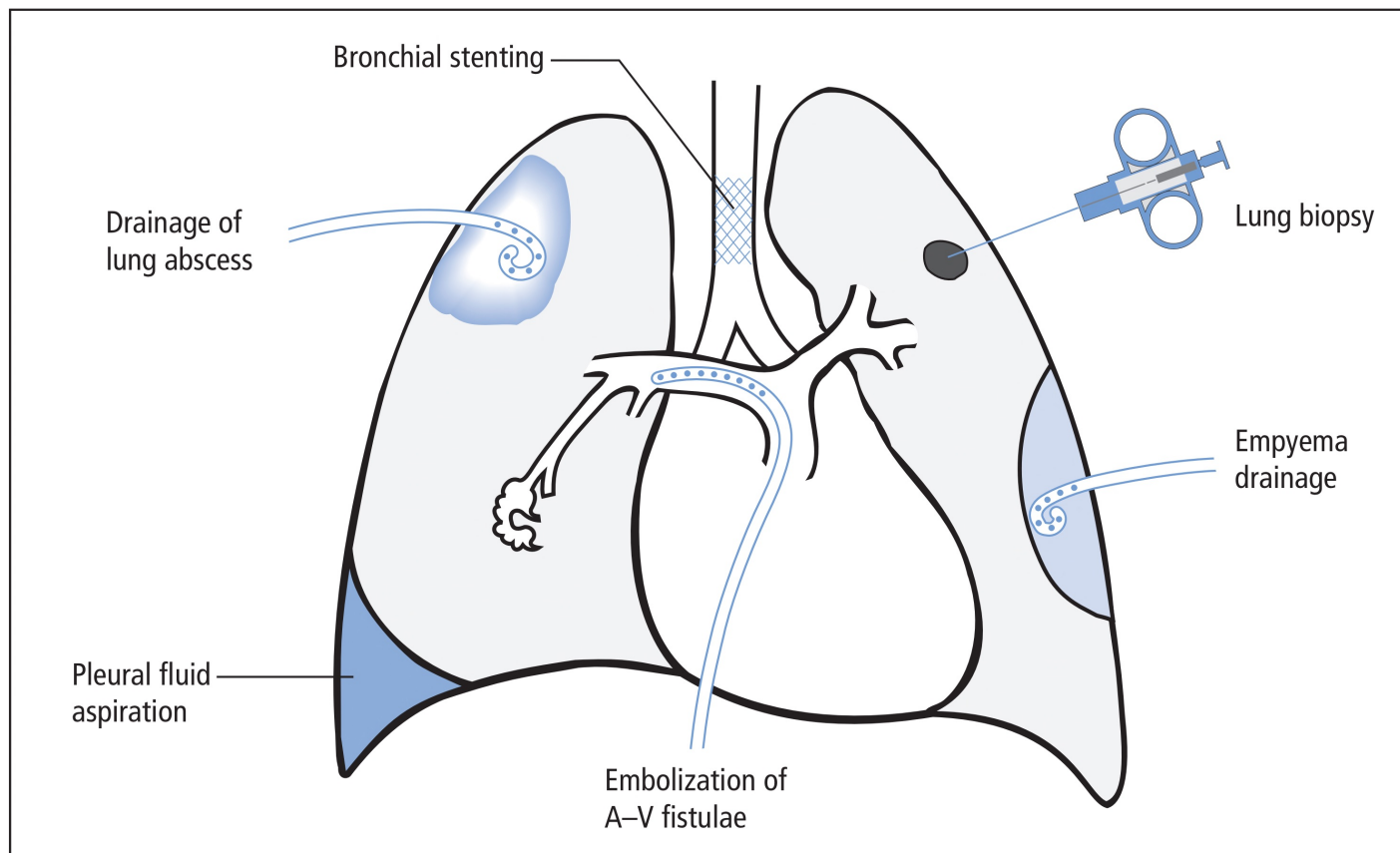
- Purulent fluid in the pleural cavity, usually due to infection from adjacent structures, can be drained directly by catheter insertion.

(iv) Bronchial Wall Stenting:

- In malignant narrowing of bronchus, insertion of an expandable metal stent.

(v) Embolization:

- Bronchial artery embolization in treatment of life threatening hemoptysis, & embolization of pulmonary arterio-venous malformations.



Cardiovascular System

Angioplasty

Stenoses in the aorta, iliacs, femorals, peripheral vessels, carotids, coronary vessels, renals and virtually any other artery can be dilated by means of balloon inflation. Narrowed arterial segments and occlusions can also be treated by insertion of metallic stents. The superior vena cava can be stented to relieve malignant obstruction.

Thrombolysis

Recent arterial thrombus can be lysed by positioning a catheter in the thrombus and infusing streptokinase or TPA (tissue plasminogen activator). Contraindications to this procedure include bleeding diatheses and recent cerebral infarction.

Embolization

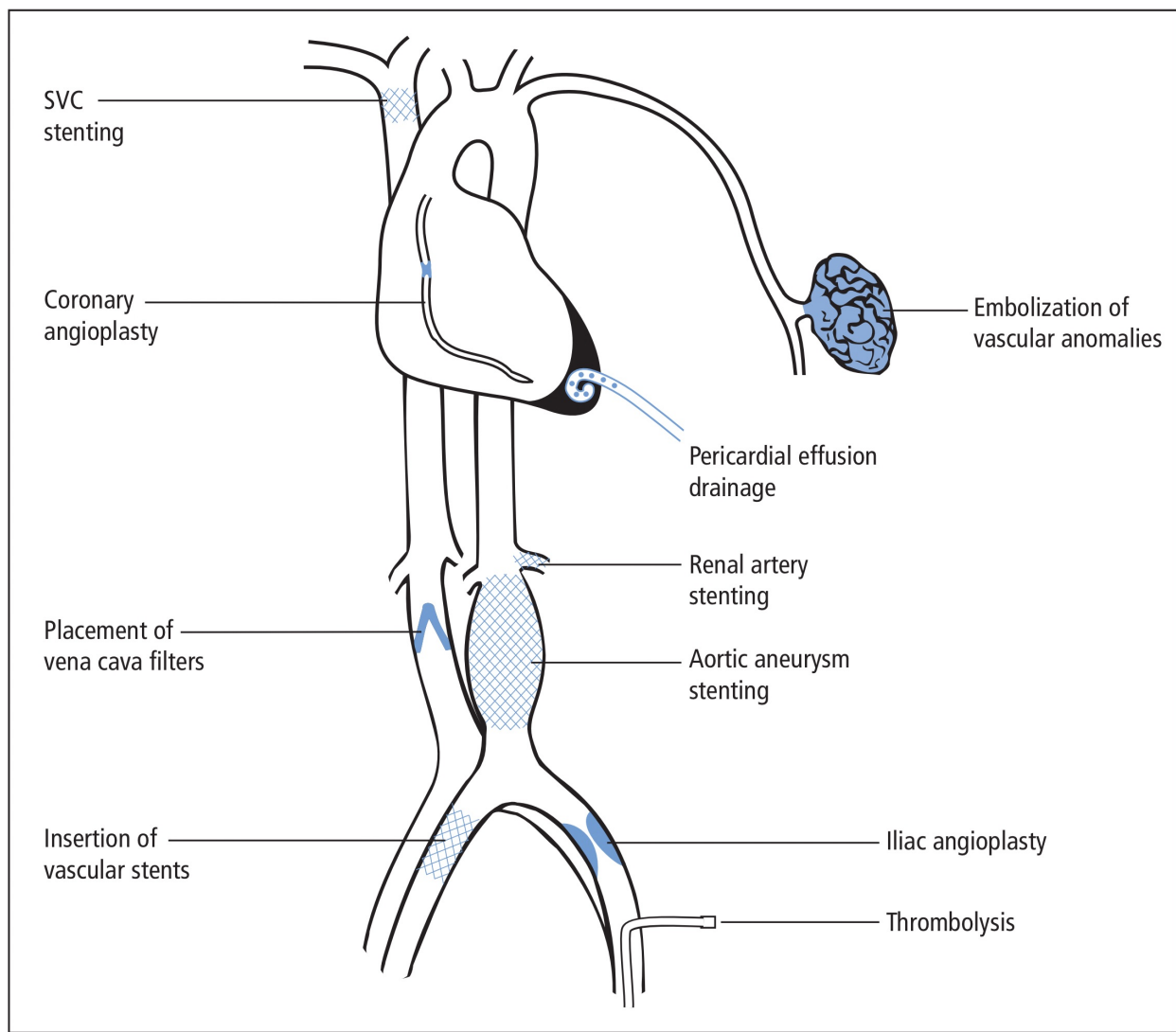
The deliberate occlusion of arteries or veins for therapeutic purposes. Steel coils, detachable balloons or various other occluding agents are injected directly into the feeding vessels. Indications include arterial bleeding, arteriovenous fistulae and angiomatous malformations.

Vena cava filter insertion

A filter is introduced percutaneously through either the femoral or internal jugular vein and positioned in the inferior vena cava, just below the renal veins, thus preventing further embolization from the thrombus originating in pelvic or lower-limb veins.

Aortic stenting (EVAR)

Used for the treatment of abdominal aortic aneurysms with insertion of the stent via the common femoral arteries.



Gastrointestinal Tract

Oesophageal dilatation

A larger-diameter balloon is used for dilatation of benign structures, postoperative anastomotic strictures (e.g. gastroenterostomy), achalasia and palliation of malignant strictures.

Oesophageal stent

A metallic self-expanding stent is inserted for palliation of malignant oesophageal strictures.

Colonic stent

Metal expandable stents can be inserted for palliation of malignant strictures.

Percutaneous gastrostomy

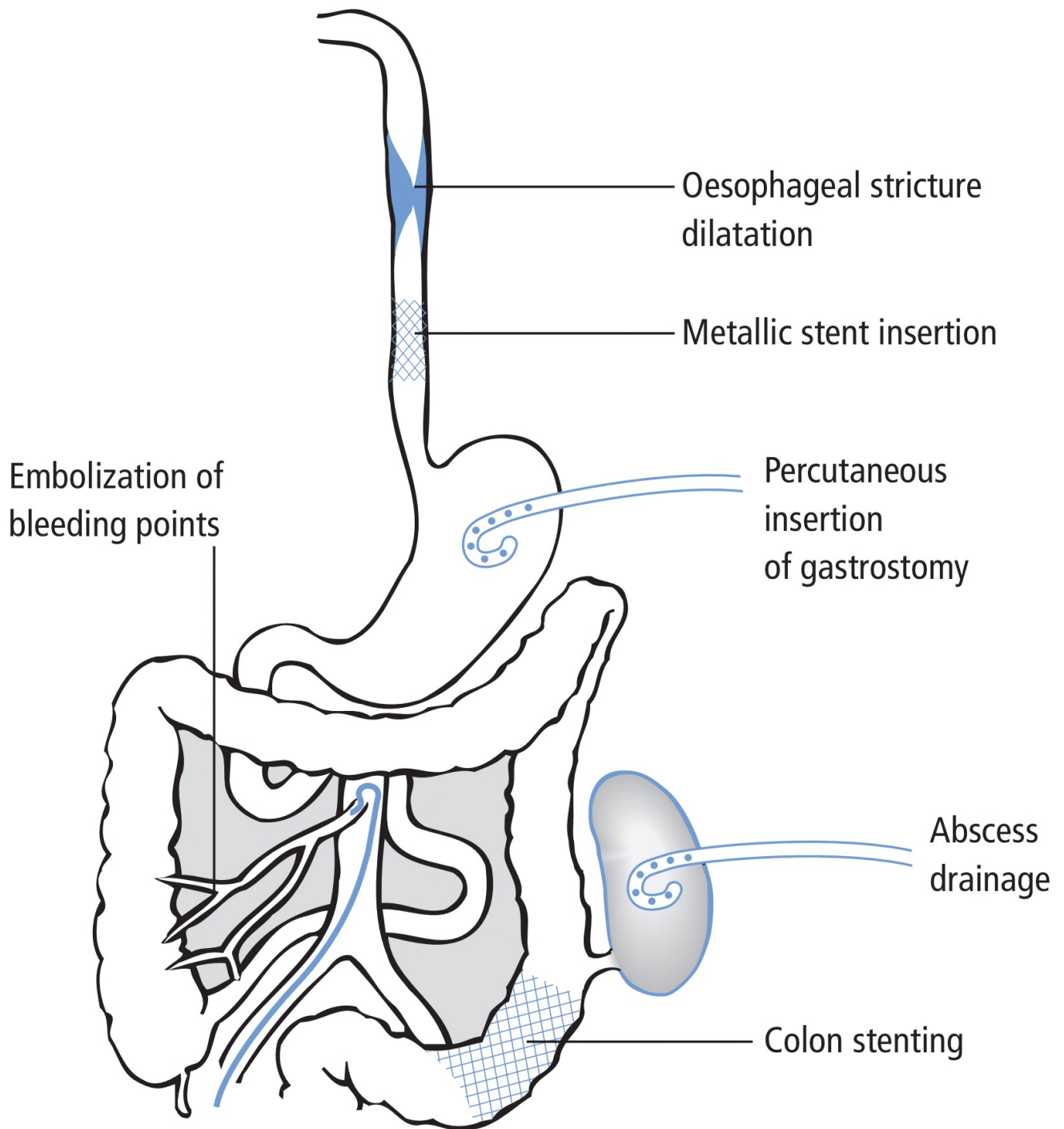
After gastric distension with air, a catheter is inserted directly through the anterior abdominal wall into the stomach.

Embolization

Angiography may localize the bleeding point in severe gastrointestinal haemorrhage. Control of haemorrhage may be possible by infusion of vasopressin or embolization.

Abscess drainage

Percutaneous drainage of subphrenic and pancreatic collections.



Biliary Tract

External biliary drainage

In biliary obstruction, a catheter is inserted percutaneously through the liver into the bile ducts.

Internal biliary drainage with endoprosthesis

A plastic or metal stent is positioned within the biliary stricture and free internal drainage achieved without the need for any external catheters. The procedure is preferably carried out by endoscopic retrograde cholangiopancreatography (ERCP), but if this fails the stent can be inserted using a percutaneous approach.

Liver biopsy

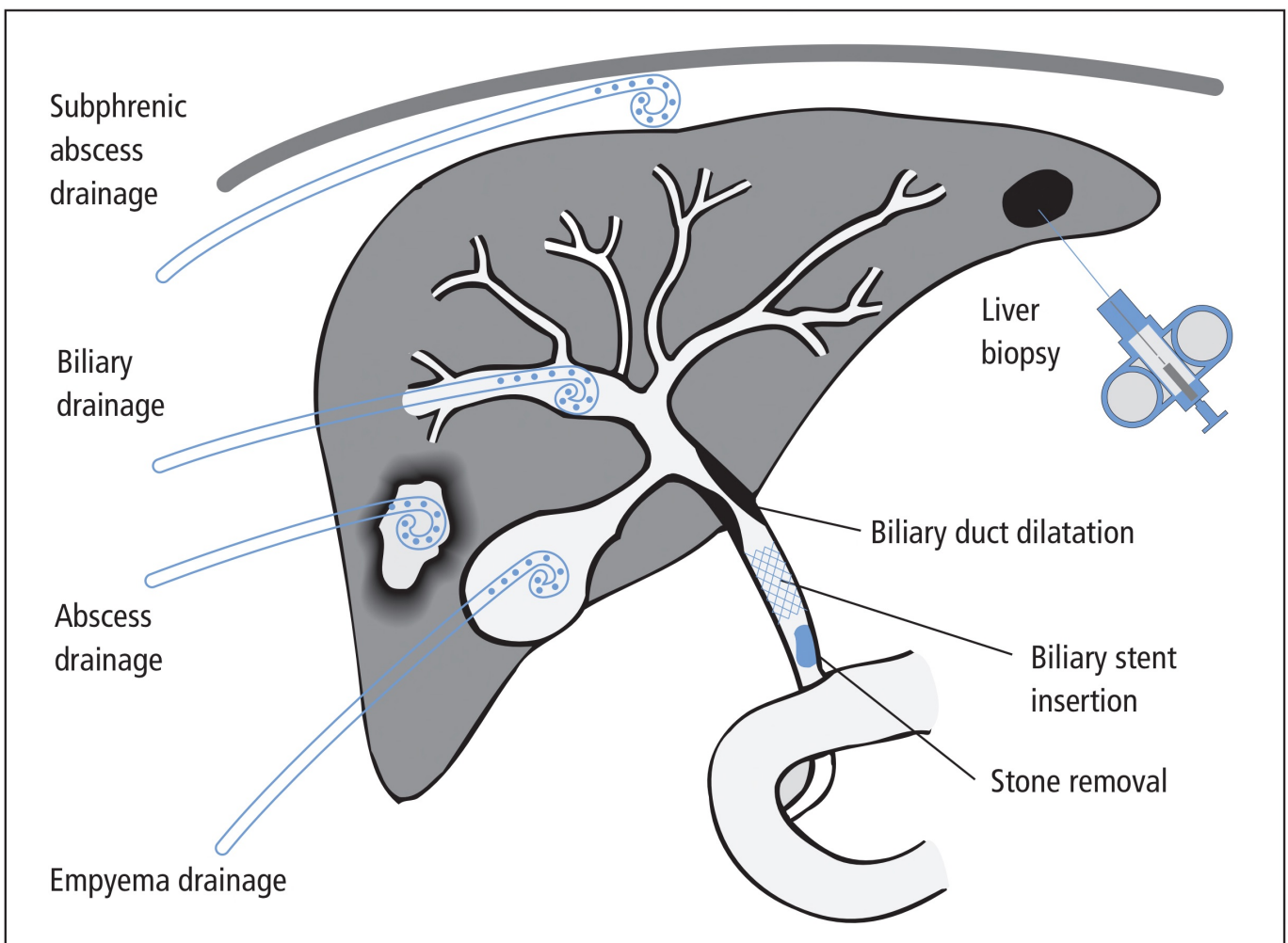
Safer to perform with ultrasound control. Focal lesions can be biopsied for a histological diagnosis.

Biliary duct dilatation

Balloon dilatation of a benign biliary stricture.

Other

Liver/subphrenic abscess drainage and biliary stone removal.



Urinary Tract

Renal angioplasty

Balloon dilatation of renal artery stenosis or insertion of metallic stents to alleviate the stenosis (treatment of hypertension or to preserve renal function).

Percutaneous nephrostomy

To establish free drainage of urine when the kidney is obstructed, by insertion of a catheter into the pelvicalyceal system.

Ureteric stent

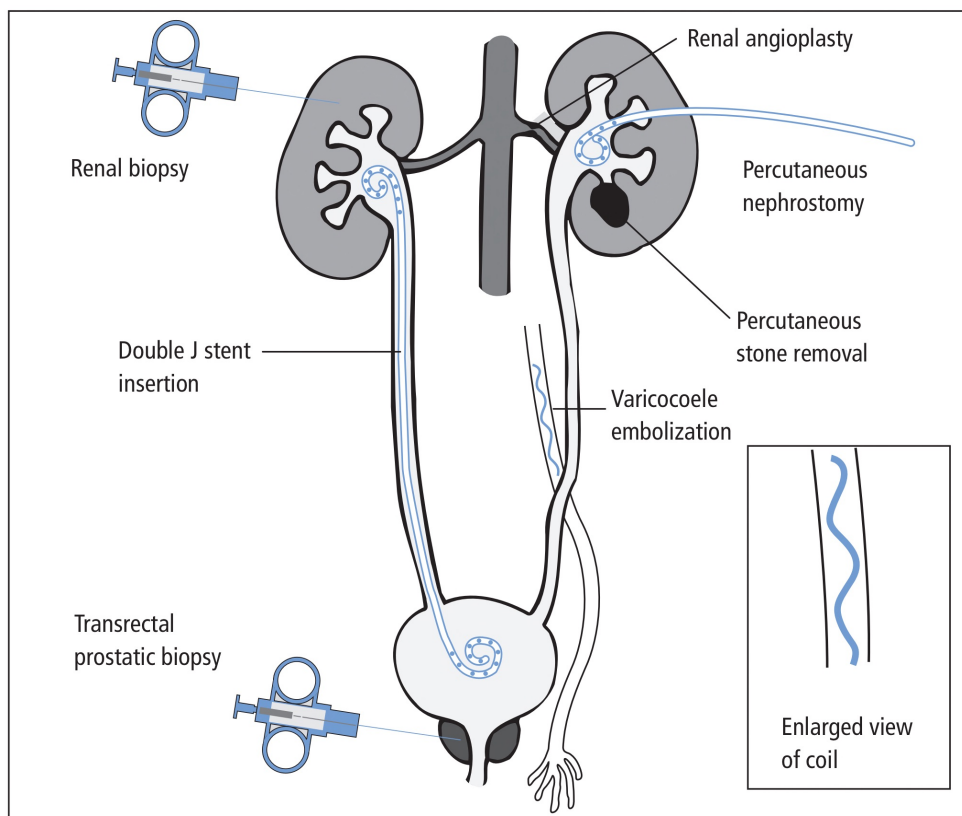
A special catheter positioned so one end lies in the renal pelvis and the other in the bladder, for the relief of obstruction. Introduction is either from the lower ureter after cystoscopy by a urologist or from above percutaneously under radiological control.

Percutaneous stone removal

Removal of a renal calculus, through a percutaneous track from the posterior abdominal wall directly into the kidney.

Other

Useful in the treatment of bleeding A-V renal fistulae and to occlude the testicular vein in a varicocoele.



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