The main indications for central venous cannulation are:

**Measurement**
- Central venous pressure
- Pulmonary artery catheterization and monitoring
- Frequent blood testing

**Non Drug Interventions**
- Transvenous cardiac pacing
- Temporary hemodialysis
- Aspiration of air emboli

**Drug Administration**
- Concentrated vasoactive drugs
- Hyperalimentation
- Drugs irritating to peripheral veins
- Prolonged IVABs (endocarditis)
- Rapid infusion of fluids (through large cannulas)
- Inadequate peripheral access

The main complications are:

**Mechanical**
- Vascular injury (arterial or venous)
- Cardiac tamponade
- Respiratory compromise
- Airway compression from hematoma
- Pneumothorax
- Nerve injury
- Arrhythmias

**Thromboembolic**
- Venous thrombosis
- Pulmonary embolism
- Catheter or guidewire embolism

**Infectious**
- Insertion site infection
- Catheter infection
- Bloodstream infection
- Endocarditis
- Misinterpretation of data
- Misuse of equipment

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**PERIPHERAL VASCULAR ANATOMY**

The main indications for central venous cannulation are:

**Measurement**
- Central venous pressure
- Pulmonary artery catheterization and monitoring
- Frequent blood testing

**Non Drug Interventions**
- Transvenous cardiac pacing
- Temporary hemodialysis
- Aspiration of air emboli

**Drug Administration**
- Concentrated vasoactive drugs
- Hyperalimentation
- Drugs irritating to peripheral veins
- Prolonged IVABs (endocarditis)
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The main complications are:

**Mechanical**
- Vascular injury (arterial or venous)
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- Venous thrombosis
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- Catheter infection
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The internal jugular vein

**Origin**
From the jugular foramen

**Terminates**
Behind the sternoclavicular joint in the Subclavian Vein

**Course**
Relatively straight course in the neck, it lies with the carotid artery and the vagus nerve within the carotid sheath. Superficial in the upper part of the neck before it descends deep to the sterno-cleidomastoid muscle

**Anterior**
Superficial fascia superiorly and SCM inferiorly

**Posterior**
Vertebral muscles, sympathetic chain and thoracic duct (L only)

**Medial**
The carotid arteries, and CNX as well as CN IX, XI and XII.

**Lateral**
SCM and CN XI inferiorly

The external jugular vein

The external jugular vein begins near the angle of the mandible (just inferior to the auricle of the external ear) by the union of the posterior division of the retromandibular vein with the posterior auricular vein. The EJV crosses the SCM obliquely, deep to the platysma, and then pierces the investing layer of deep cervical fascia, which forms the roof of this region, at the posterior border of the SCM. The EJV descends to the inferior part of the lateral cervical region and terminates in the subclavian vein.

The subclavian vein

**Origin**
From the axillary vein

**Terminates**
Behind the sternoclavicular joint in the internal jugular vein to become the brachiocephalic vein (innominate)

**Course**
Commencing from the axillary vein medially it receives flow from the external jugular vein, progressing anterior to the anterior scalene muscle which separates the SCV and artery. It crosses travels over the superior surface of the first rib forming a slight groove. It then arches up medially then down to join the UV and form the brachiocephalic.

**Anterior**
Posterior surface of the Clavicle

**Posterior**
Anterior scalene muscles, subclavian artery

**Medial**
Thoracic duct, brachiocephalic trunk

**Lateral**
Lower trunk brachial plexus

**Inferior**
First Rib, first intercostal space and apex of the lung

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