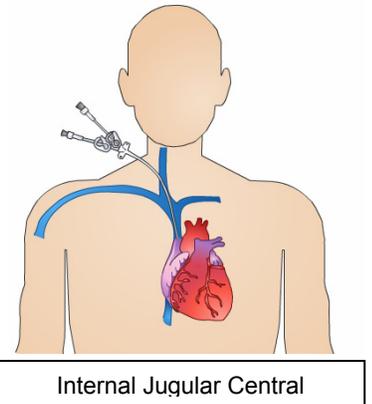


Internal Jugular Central Catheter (Jugular Line)

Introduction

An internal jugular central catheter, jugular line, or “IJ” as many physicians call it, is a long thin hollow tube inserted in a vein in the neck. It is long enough to reach the large vein that enters the heart. It is used when a patient needs intravenous treatment for an extended period of time, when a big vein and a big caliber IV are needed or when no other IV site can be found.

Your doctor may have recommended that you have a jugular line inserted. The decision to have this procedure is also yours. This reference summary explains the benefits and risks of a jugular line. It also discusses how to take care of it.



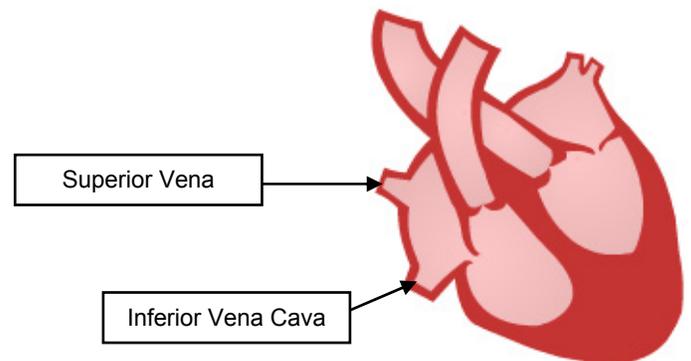
Anatomy

This section reviews basic anatomy facts that help you to understand where and how a jugular line is placed.

Blood carries nutrients and oxygen to all parts of the body. The heart pumps blood rich in oxygen through arteries. The cells and tissues of the body use the oxygen. Blood poor in oxygen returns to the heart in veins.

The superior vena cava is the main vein that returns blood from the arms and head. The inferior vena cava is the main vein that returns blood from the abdomen and legs.

The heart pumps the blood poor in oxygen to the lungs. In the lungs, the blood becomes saturated with oxygen again. It then returns to the heart, and the cycle starts again.



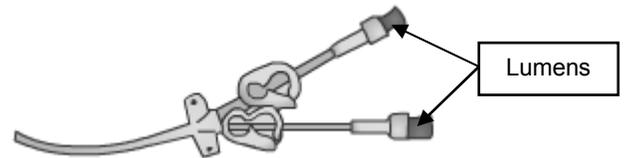
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Jugular Line

IV stands for intravenous. “Intravenous” means into the veins. IV therapy is treatment that is delivered directly inside the veins. This allows medications, fluids, and nutrients to circulate immediately in the blood.

The jugular line is a narrow hollow tube. It is called a catheter. It is 6 to 9 inches long enough to reach the superior vena cava, the large vein that enters the heart.

The catheter may have one or more openings through which medications or nutrients are administered. Each opening is called a “channel” or “lumen”, a sort of long tunnel that runs the whole length of the catheter.



The jugular line is inserted into a vein in the neck, the jugular vein. Like other IVs, it is used to administer or give medications, fluids, and nutrients. It can also be used to draw blood.

A jugular line has several advantages over other IVs. Jugular lines tend to last longer than regular IVs, up to a few weeks longer. They don't get infected, blocked or quit working as often as regular IVs. Moreover, because they can have more than one channel, they replace more than one IV. With one jugular line, the patient will experience less pain and discomfort than with multiple or frequent IV lines.

A jugular line is usually placed in a hospital by a physician. It can be left in place longer than other IV lines. It also has less risks of catheter infection. There are, however, some rare risks of lung puncture not seen in IVs placed in the arms or hands.



Procedure

Before your catheter is placed, your blood will be drawn for various blood tests. Then, a doctor will insert the catheter in a sterile setting. The healthcare provider will wear a gown, mask, cap and sterile gloves. You will be asked to lie down on a bed.

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The skin in the front part of the neck will be cleansed. A sterile sheet will be draped on that area. Your head may be lowered to allow the blood vessels in the upper body to fill up with blood and be easier to canulate.

You will be given an injection of lidocaine to numb your skin; you will feel a pinprick and slight burning. When the area is numb, the insertion of the catheter will start.



The jugular line is placed through the skin and into the jugular vein in the neck using a needle. An ultrasound machine may be used to view the veins in the neck. During the ultrasound, a sterile gel is applied to skin, and a probe with a sterile cover is moved up along the neck, allowing the veins to be viewed on a small screen monitor.

The vein is reached using a long needle. Once the doctor sees blood coming from the needle, he or she threads a long flexible guide wire through the needle and into the vein. The needle is then taken out and a small incision made alongside the guide wire. Another short tube, called a dilator is threaded over the guide wire into the vein, to make the opening in the vein bigger. The dilator is taken out and the final catheter is then threaded over the guide wire and into the vein, all the way to superior vena cava. The catheter may also be threaded or “tunneled” under the skin for a short distance.

The guide wire is then taken out and the catheter remains in place. The catheter may be held to the skin using one or more sutures.

After the procedure, a chest x-ray or a fluoroscopic spot film will be taken to make sure the catheter tip is in the right place. You may feel some tenderness after the procedure. This usually goes away in about 24 to 48 hours.

The catheter lumens must be flushed to keep the inside of the catheter clean and free flowing. While you are at the hospital, a nurse will flush the line with normal saline and heparin. Patients are rarely sent home with a jugular line. If you will be going home with your jugular line, you will receive instructions on how to care for your jugular line at home and a get a chance to practice before you are discharged.



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You will have your dressing changed weekly at the clinic. If you are home bound, a nurse will come to change your dressing weekly.

Risks and Complications

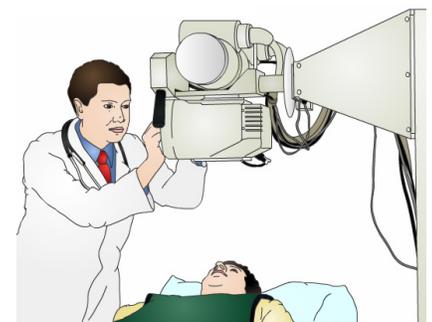
Inserting a jugular line is a safe procedure. However, like any invasive procedure, it has some risks. Though they are rare, they may still occur. You can help by looking for signs of complications. This section discusses those risks. They include infection, bleeding, clotting, and irritation at the insertion site. They also include breakage or displacement of the catheter.

It may be very difficult to insert a jugular line in patients who have had previous neck surgeries. The healing process of the neck may have resulted in scarring that makes the insertion of a jugular line more problematic, if not impossible. It is therefore very important to tell your doctors about any operations you might have had, even in the very remote past. At times placing a jugular line may prove impossible and a different route may be chosen.

Because a jugular line involves placing a needle in the neck and possibly upper chest area, there is a very small chance that the lung on that side may be punctured and that air may collect between the lung and the chest wall. This complication is known as 'pneumothorax'. Some pneumothoraces may not need any treatments and others may require the placement of a tube in the chest wall to drain the excess air to the outside. This is known as a chest tube.

An x-ray done after the procedure can usually detect this complication. Such an x-ray also makes sure that the catheter is in a good location. If it is not, then it may have to be rethreaded.

There is also a small chance of injuring other blood vessels in the neck and chest area such as arteries that go to the brain, this is extremely rare. If a blood clot occurs and if it is big enough to cause breathing difficulties then an operation may be necessary to take it out. This is extremely rare.



X-Ray Machine

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Infection may occur if the exit site is not kept clean and dry. Every time the infusion cap is removed, bacteria may enter the catheter and travel to the bloodstream. If you feel fever or chills, call your nurse or doctor right away. Closely check your catheter exit site for signs of infection, such as redness, tenderness, drainage, or pain at the site.

A small amount of bleeding at the exit site is normal for the first 24 hours after your catheter is placed. However, if the bleeding persists, or if the blood leaks through the dressing, apply firm pressure to the site and call your nurse or doctor for help.

A blood clot may block the flow of fluid through your catheter if the catheter is not flushed right after blood drawing or if blood backing up in the catheter is not cleared. To prevent clotting, flush the catheter with saline or heparin. If it feels like you cannot push any liquid into the catheter, stop. Do not force the syringe. Call your nurse or doctor.

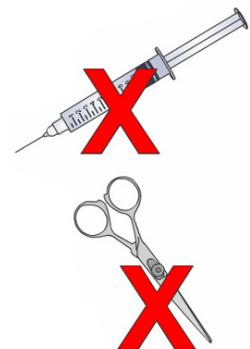


Thrombosis is when a blood clot forms and blocks blood flow through the vein where your catheter is placed. Signs of thrombosis are pain or swelling in your neck, face, chest, or arm. You may also feel fullness in your face. If you notice these signs, call your nurse or doctor right away.

Air embolism may occur if air enters your vein through the catheter. You may feel short of breath or develop a cough. If this happens, call your nurse or doctor immediately.

It is rare for your catheter to break or tear, but this can happen. Here is how you can prevent catheter breakage:

- Never use a needle on the catheter
- Never use less than a 10-cc syringe when flushing the catheter
- Avoid putting sharp objects near the catheter, such as scissors and knives
- Avoid twisting the catheter. Instead, grasp it by the hub when flushing or changing the cap



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If your catheter does break, you might see that your dressing is wet, or that your catheter leaks when you flush it. If the catheter breaks, immediately call your nurse or doctor. Some catheters can be mended.

Catheter migration occurs when the catheter moves from where it was first placed. Migration may be caused by hard coughing, frequent nausea/vomiting, physical activity, or a catheter that is loosely anchored.

Signs of a migrated catheter include increased length of the external catheter, swelling in the chest or neck during an infusion, pain or discomfort during the infusion, no blood return, or leaking at the catheter site. If you think your catheter has moved more than an inch, or if you feel any of the signs and symptoms, inform your nurse or doctor right away.

Rarely the tip of the catheter can migrate into the heart chambers. When this happens the heart rate may become erratic and you may feel some shortness of breath or skipped beats. Let your doctor know if you have any of these symptoms. A chest X-ray can be done to check for migration and the jugular line pulled back enough to place the tip back into the superior vena cava.



Precautions

The following are precautions you should observe while the jugular line is in place.

- Never use scissors near your catheter.
- Always carry the smooth-edged clamp your nurse gave you. It is needed in case the catheter breaks.
- Never let the catheter dangle in the water. Do not swim with your catheter in place. You may shower with the dressing in place, but the dressing and catheter must be covered with plastic. If the dressing or catheter gets wet, contact your healthcare team to have the dressing changed.
- You may continue your normal activities including work, school, exercise and sexual activity. Contact sports are not recommended.



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Summary

An internal jugular central catheter, or jugular line, is a long thin tube inserted in a vein in the neck. It is long enough to reach the large vein that enters the heart. It is used when a patient needs intravenous treatment for a long time.

A jugular line has several advantages over other IV lines. It lasts longer and takes the place of more than one IV. It therefore does not require additional IV insertion sticks.

With one jugular line, the patient will experience less pain and discomfort than with multiple or frequent IV lines. Like any invasive procedures, inserting a jugular line has certain risks. Learning about them will help you recognize the signs of complications and seek treatment. Your healthcare provider is available to answer questions about your particular jugular line and how to care for it.



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