



Understanding Stent Placement Procedures: A Lifesaving Intervention

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INTRODUCTION

Stent placement procedures have become a crucial component of modern medical interventions, saving countless lives by addressing a wide range of cardiovascular and non-cardiovascular conditions. Stents are small, mesh-like tubes that are inserted into blood vessels or ducts to provide structural support and maintain proper blood flow or fluid passage. In this article, we will delve into the world of stent placement procedures, shedding light on their significance, types, and the intricate process involved in their deployment. Stent placement procedures are employed in various medical fields, primarily in cardiology and interventional radiology. In cardiology, coronary stents are used to treat Coronary Artery Disease (CAD), a leading cause of heart attacks. CAD occurs when the blood vessels that supply the heart with oxygen-rich blood become narrowed or blocked due to the buildup of plaque. Stents are introduced into these vessels to restore blood flow and prevent heart muscle damage. In interventional radiology, stents are used to treat a wide array of conditions, such as Peripheral Artery Disease (PAD), renal artery stenosis, and biliary strictures. Stents can also be employed in non-cardiovascular cases, including gastrointestinal and urological issues, making them a versatile tool in modern medicine.

DESCRIPTION

There are various types of stents designed for specific medical purposes. The two main categories are Bare-Metal Stents (BMS) and Drug-Eluting Stents (DES). Bare-metal stents are typically made of stainless steel or other metallic alloys. They are used to provide structural support to a narrowed blood vessel or duct.

BMS are particularly useful in situations where the risk of clot formation is low. However, they are not without drawbacks, as they may lead to restenosis, a re-narrowing of the vessel due to the body's healing response. Drug-eluting stents are coated with medications that are slowly released into the surrounding tissue over time. These drugs help prevent restenosis by inhibiting cell proliferation and reducing inflammation. DES are the preferred choice in most coronary stent placements due to their ability to significantly lower the risk of re-blockage. The stent placement procedure is a minimally invasive intervention, reducing the risks associated with open surgery. Here's an overview of the general steps involved. Before the procedure, the patient undergoes a comprehensive evaluation, including medical history, physical examination, and imaging tests such as angiography, ultrasound, or Computed Tomography (CT) scans. These tests help determine the location, size, and severity of the blockage or narrowing. The patient is usually asked to fast for a few hours before the procedure.

CONCLUSION

Intravenous (IV) lines are established, and the patient is sedated or given local anesthesia to minimize discomfort during the procedure. A small incision is made at the access site, typically in the groin, wrist, or arm, depending on the type of stent placement. Through this incision, a catheter is inserted and guided to the affected area using fluoroscopy, a real-time X-ray imaging technique. In cases of severe blockages, a balloon-tipped catheter is used to dilate the narrowed vessel. This process, known as angioplasty, creates a wider passage to facilitate stent deployment. The stent, mounted on a balloon catheter, is carefully positioned at the site of the blockage.

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