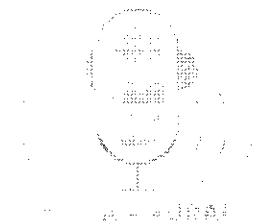




Kalitheerthalkuppam, Madagadipet, Puducherry- 605107



The official podcast of SMVMCH

Name of Resource person: Dr. Roshen Raghaventhara.R

**Podcast Title: Interventional Radiology Surgery
Without a Scalpel**

Department: Radiodiagnosis

Category: Public awareness

TRANSCRIPT

Hello everyone.

I am **Dr. Roshen Raghaventhara**, Senior Resident in the Department of Radiodiagnosis at **Sri Manakula Vinayagar Medical College and Hospital**.

It is a pleasure to speak with you today about one of the most dynamic and rapidly advancing subspecialties in modern medicine—**Interventional Radiology**, often referred to as "**Surgery Without a Scalpel**."

When we think of radiology, we often associate it with diagnosing diseases using X-rays, ultrasound, CT, or MRI. However, radiology has evolved far beyond diagnosis. Today, imaging not only allows us to identify disease but also enables us to treat it with remarkable precision.

Interventional Radiology, or IR, is a clinical subspecialty that uses real-time imaging guidance—including ultrasound, fluoroscopy, CT, and occasionally MRI—to perform minimally invasive diagnostic and therapeutic procedures. Through a tiny skin puncture, often just a few millimetres in size, catheters, guidewires, and needles are navigated to the target organ with exceptional accuracy.

The fundamental principle of Interventional Radiology is straightforward: **to achieve the desired therapeutic outcome while minimizing tissue trauma**. Compared with conventional surgery, these procedures are associated with smaller incisions, reduced blood loss, lower complication rates, shorter hospital stays, faster recovery, and earlier return to normal activities.

Let me illustrate this with a few common clinical scenarios.

Consider a patient presenting with a liver abscess. Rather than subjecting the patient to an open surgical procedure, ultrasound guidance allows accurate placement of a drainage catheter directly into the collection. This minimally invasive approach effectively controls infection while significantly reducing patient morbidity.

Another example is obstructive uropathy. When urinary drainage is compromised due to a calculus or malignancy, timely decompression is essential to preserve renal function. A **percutaneous nephrostomy**, performed under imaging guidance, provides immediate relief by diverting urine directly from the renal collecting system.

Interventional Radiology also plays an indispensable role in emergency medicine.

In trauma patients with active arterial haemorrhage, angiography enables precise localisation of the bleeding vessel. Using embolic agents such as coils or particles, the bleeding can be controlled through a catheter without the need for major surgery. This technique, known as **transcatheter embolization**.

Beyond emergencies, Interventional Radiology has transformed cancer care.

Image-guided core biopsies facilitate accurate histopathological diagnosis while minimizing procedural risk. For selected tumours, image-guided ablation techniques—including radiofrequency ablation, microwave ablation, and cryoablation—provide effective local tumour control, particularly in patients who are poor surgical candidates. Additionally, catheter-directed therapies such as trans-arterial chemoembolization have significantly expanded treatment options for hepatic malignancies.

Another area where Interventional Radiology has become indispensable is vascular disease. Procedures such as angioplasty and stent placement restore blood flow in patients with peripheral arterial disease, often preventing limb loss while avoiding open vascular surgery.

These examples demonstrate that Interventional Radiology is no longer merely a procedural specialty; it is an integral component of multidisciplinary patient care. Interventional radiologists collaborate closely with surgeons, physicians, oncologists, nephrologists, gastroenterologists, and emergency physicians to deliver evidence-based, patient-centred treatment.

The specialty continues to evolve rapidly. Advances in imaging technology, device innovation, artificial intelligence, navigation systems, and robotics are enhancing procedural precision and expanding the scope of minimally invasive therapies.

For medical students and young clinicians, Interventional Radiology represents a unique combination of anatomy, physiology, pathology, imaging science, and procedural expertise. It is a specialty that demands critical thinking, technical skill, and close clinical involvement, offering the opportunity to both diagnose and treat disease.

In conclusion, **Interventional Radiology exemplifies the direction in which modern medicine is progressing—towards therapies that are safer, more precise, and less invasive without compromising clinical outcomes.**

As Sir William Osler famously said, "*Medicine is a science of uncertainty and an art of probability.*" Interventional Radiology brings that science and art together by using imaging to deliver targeted therapy with precision.

Thank you.



Signature of the Resource Person



Signature of the HOD

Dr.P.ELAMPARIDHI DNB, MNAMS, EDIR, MICR, FRCR
Regd. No: 95481
Professor & HOD
Department of Radio-Diagnosis
Sri Manakula Vinayagar Medical College & Hospital
Kalitheerthalkuppam, Madagadipet, Puducherry-605107.