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# PERCUTANEOUS NEPHROLITHOTOMY

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# PERCUTANEOUS NEPHROLITHOTOMY

- ***INTRODUCTION***
- ***INDICATIONS***
- ***TECHNIQUE***

# INTRODUCTION

Minimally Invasive surgery.....why?

- ***TERMINOLOGY***
- ***PCNL,PNL,PCN,TUL,RIRS.....***

# OPEN SURGERY



# MIS



# PCNL

## TERMINOLOGY



| <b><i>Procedure</i></b>    | <b><i>Sheath outer diameter</i></b> |
|----------------------------|-------------------------------------|
| Standard PNL               | >22F                                |
| Mini-PNL                   | ≤22F                                |
| The minimally invasive PNL | 18F                                 |
| Ultra-mini PNL             | 11–13F                              |
| Mini-micro PNL             | 8F                                  |
| Micro-PNL                  | <7F                                 |
| Super mini-PNL             | 7F                                  |

# INDICATIONS

- ⊙ *Staghorn calculi*
- ⊙ *Stone larger than 20 mm*
- ⊙ *Stone larger than 10mm in lower pole*
- ⊙ *Failed ESWL*
- ⊙ *Kidney anomalies*
  - ⊙ *caliceal diverticula*
  - ⊙ *Horseshoe kidney*

# CONTRAINDICATIONS

- *Active UTI*
- *Uncorrected coagulopathy*
- *Pregnancy*
- *Inability to tolerate the operative position*

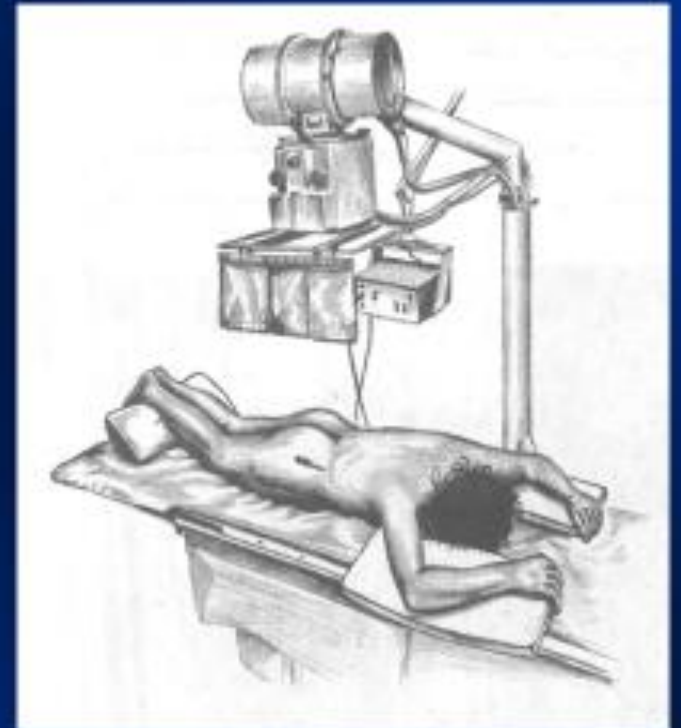
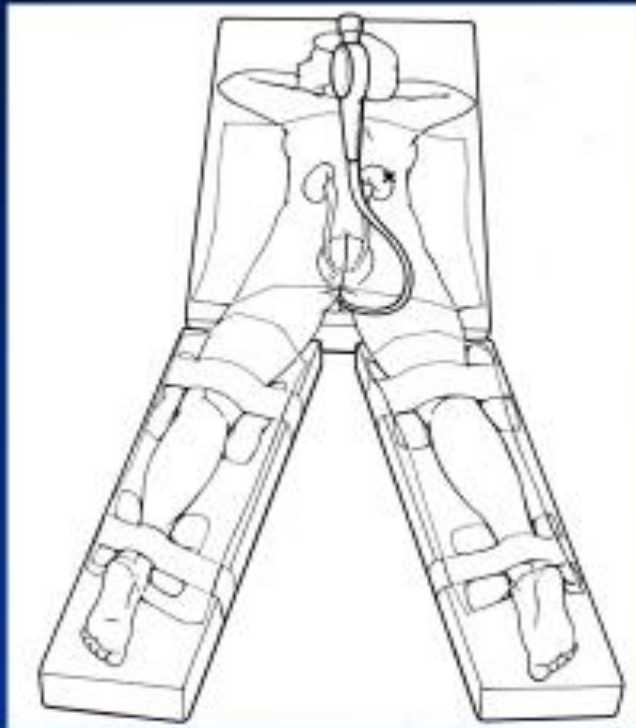
# TECHNIQUE

- 1) *Access*
- 2) *Dilatation*
- 3) *Amplatz sheath insertion*
- 4) *Lithotripsy and removal of stone fragments*

# ACCESS

- 1) *Patient positioning*
- 2) *Fluoroscopy guided*
- 3) *Ultrasonography guided*

# FLUOROSCOPY GUIDED



# FLUOROSCOPY GUIDED

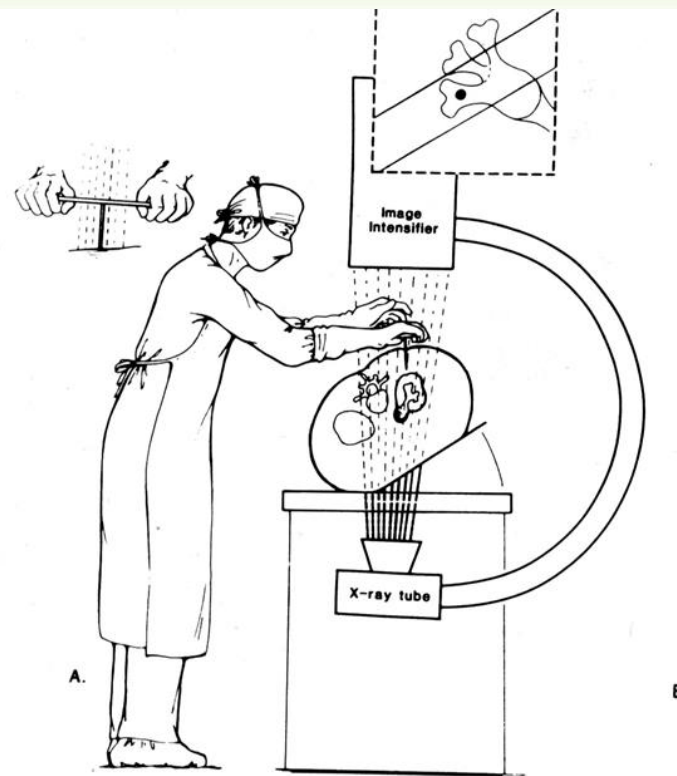
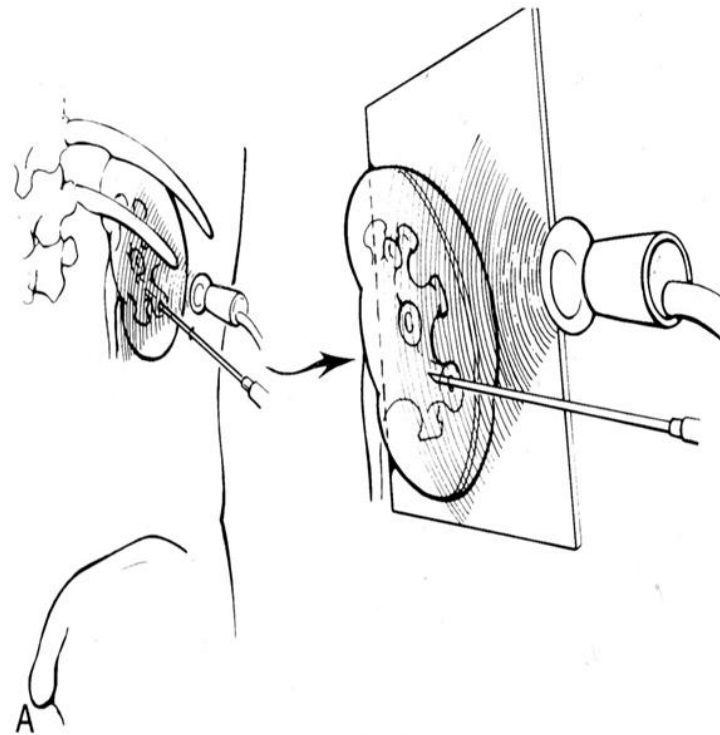
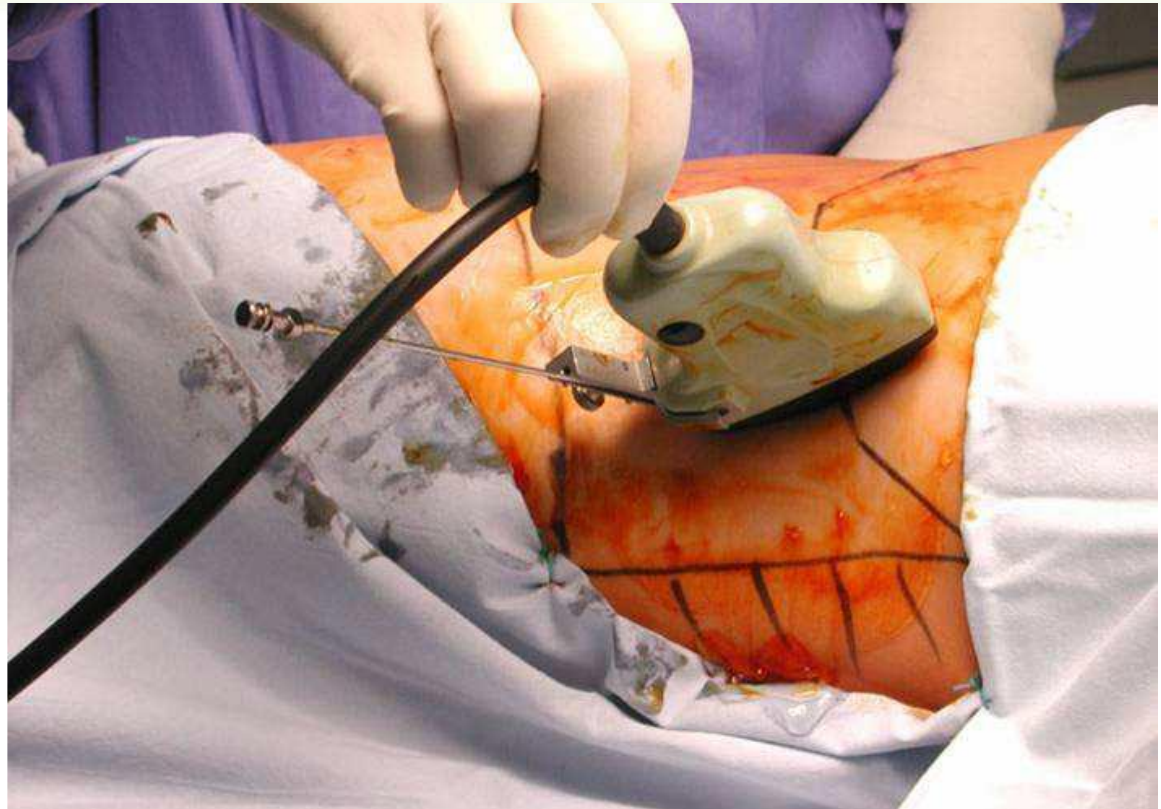


Figure 94-9. A, To facilitate a perpendicular entry into a posterior cavity, the

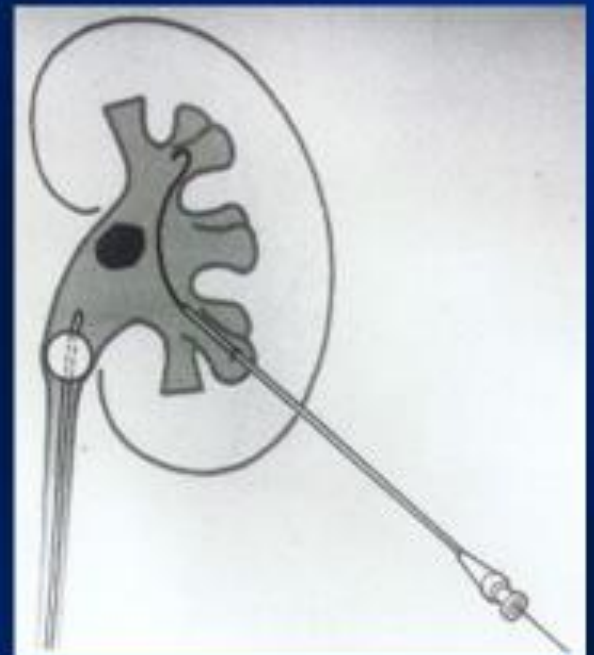
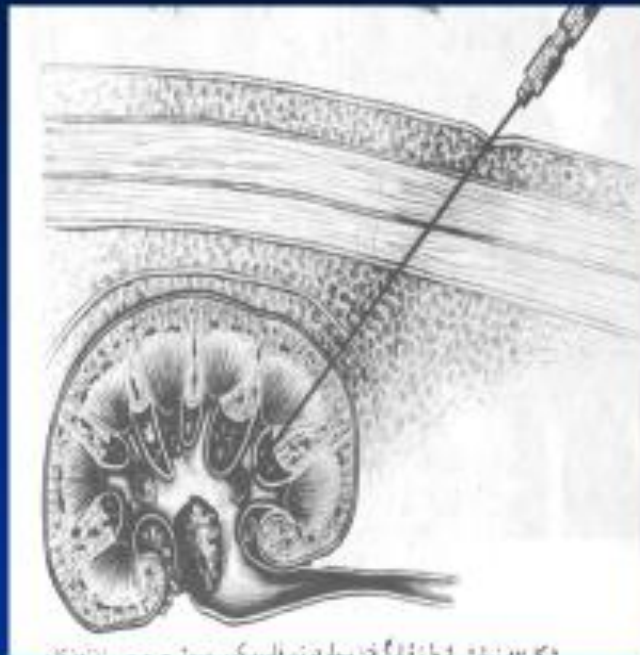
# Ultrasonography guided



# ULTRASONOGRAPHY GUIDED



# PUNCTURE



# *TRACT DILATATION*

- 1) *Coaxial metal dilator*
- 2) *Facial dilator*
- 3) *Balloon dilator*

# *COAXIAL METAL DILATOR*



# *COAXIAL METAL DILATOR*



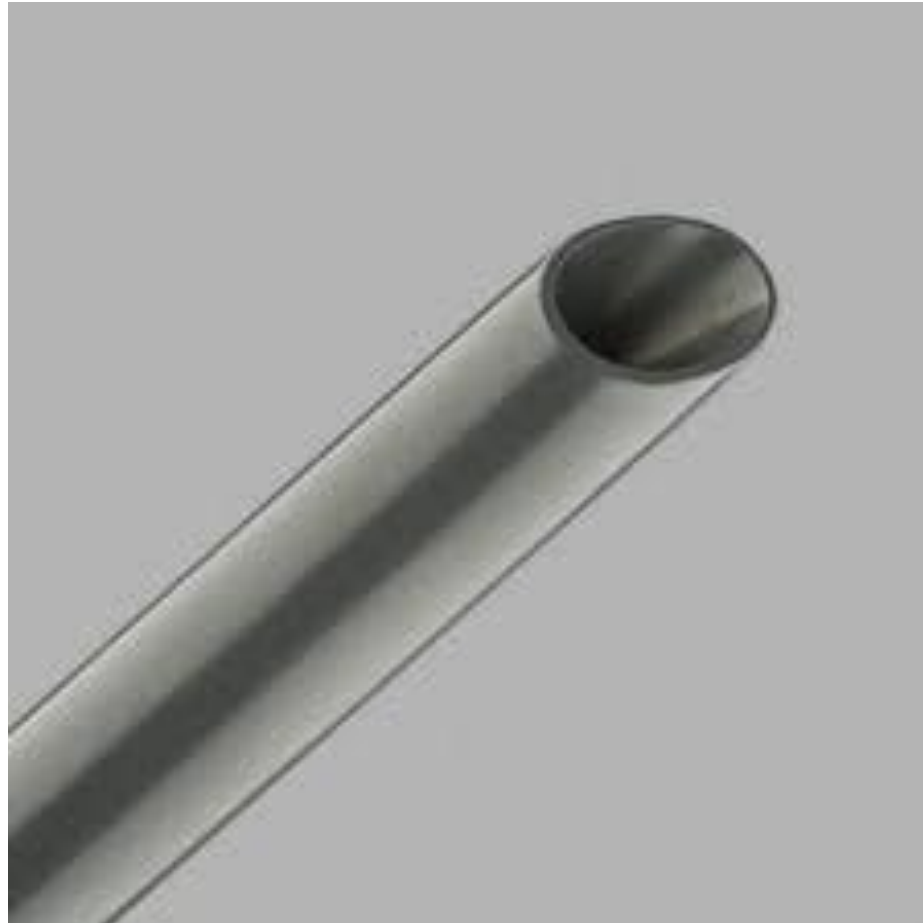
# *FACIAL DILATOR*



# *AMPLATZ SHEATH*

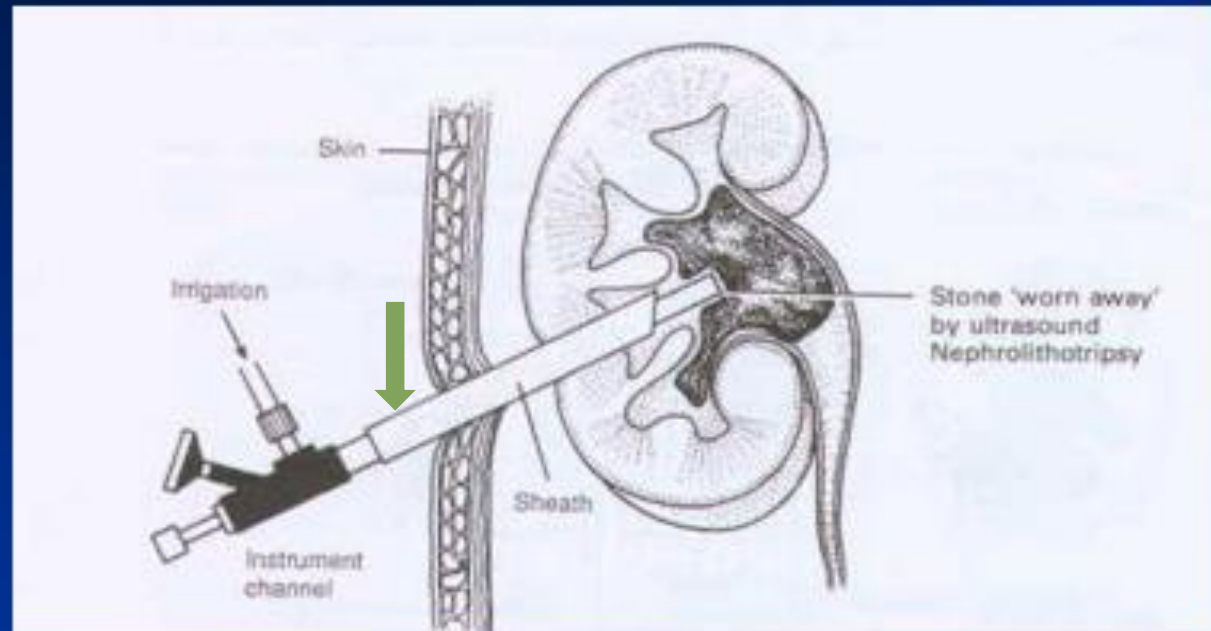


# AMPLATZ SHEATH



# AMPLATZ SHEATH

## Percutaneous Nephrolithotomy (PCNL)

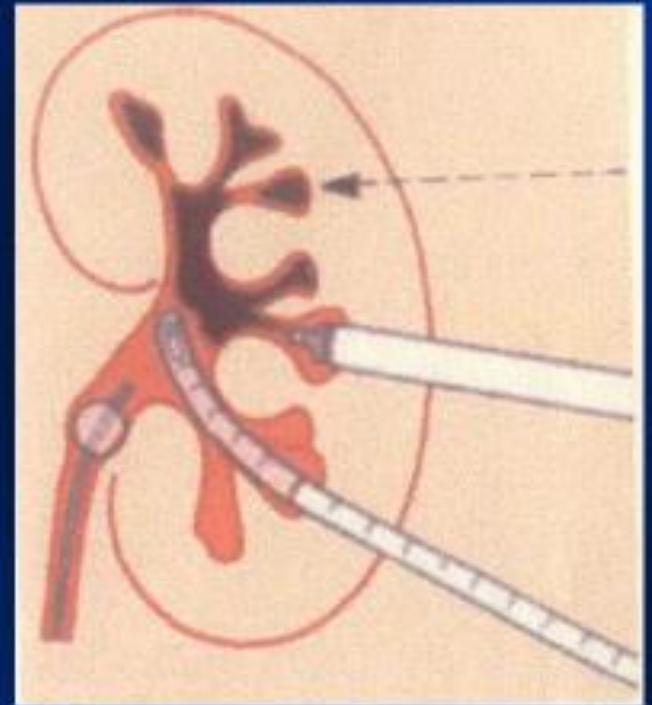
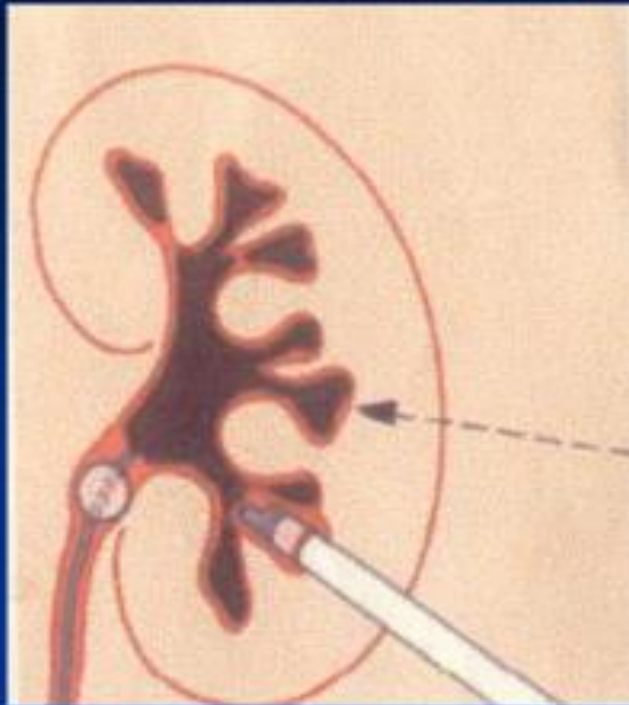


# NEPHROSCOPY

## Extra Long Instruments



# NEPHROSCOPY



# ***LITHOTRIPSY***

- 1) Ultrasonic**
- 2) Pneumatic**
- 3) Laser(Ho:Yag)**

# STONE FRAGMENTS



# CASE 1



# CASE 2



# CASE 3



# CASE 4



# CASE 5

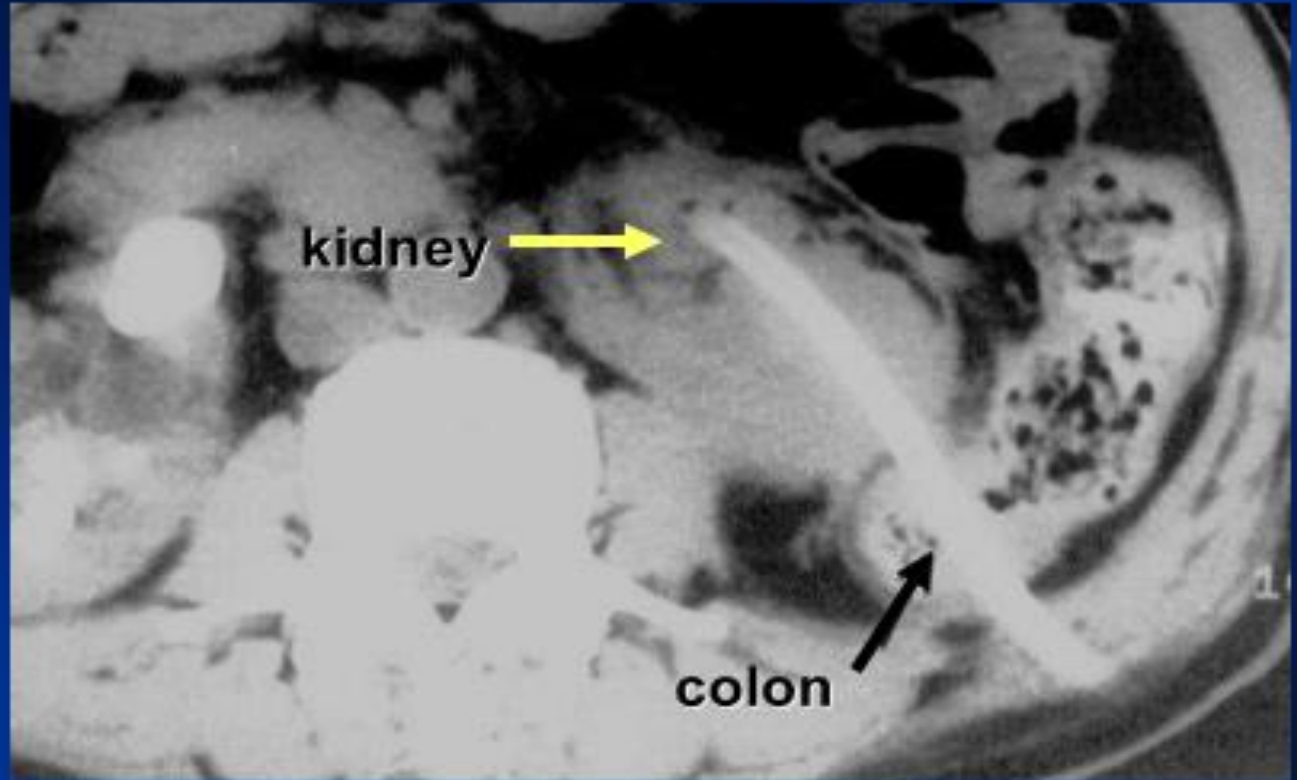


# COMPLICATIONS

- Hemorrhage
- Perforation of renal pelvis
- Gram-negative sepsis
- Fluid overload
- Colon perforation
- Splenic or hepatic injury
- Uro-cutaneous fistula

# COMPLICATIONS

## Colon Perforation



# COMPLICATIONS

## Splenic Injury



# COMPLICATIONS

## Embolization



# QUESTIONS....ZZZZ??



