

Avoiding Complications with Gastrostomy and Jejunostomy Tube Placement

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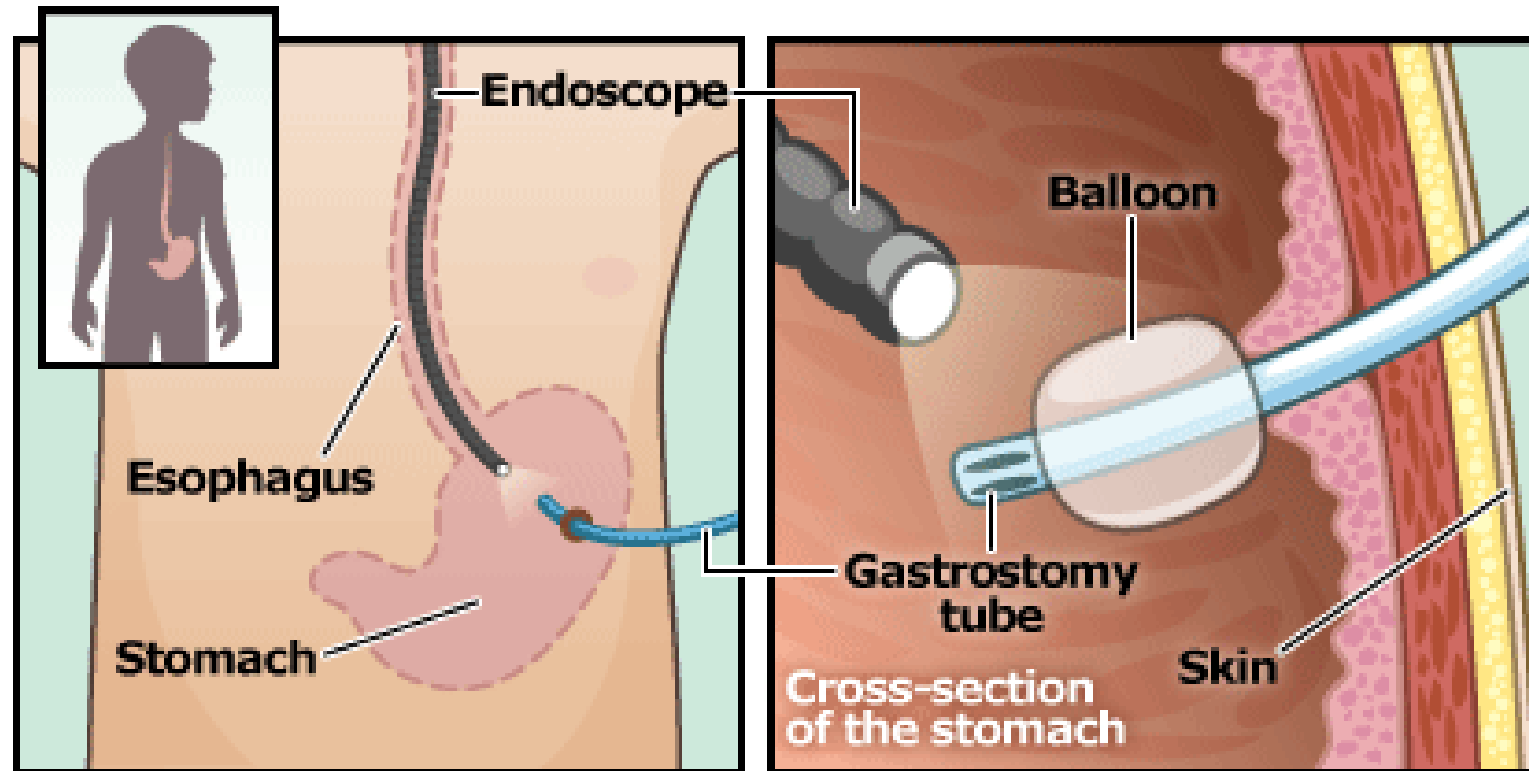
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Enteral Feeding Options

- Nasogastric Tube (<30 days)
- Surgically Placed Gastrostomy tube (since 19th Century)
 - Open
 - Laproscopically Placed
- Percutaneous Endoscopic Gastrostomy tube (PEG) (1980)
- Radiologically Inserted Gastrostomy tube (RIG) (1981)
- Per Oral Image guided Gastrostomy (PIG)
 - A hybrid Pull technique

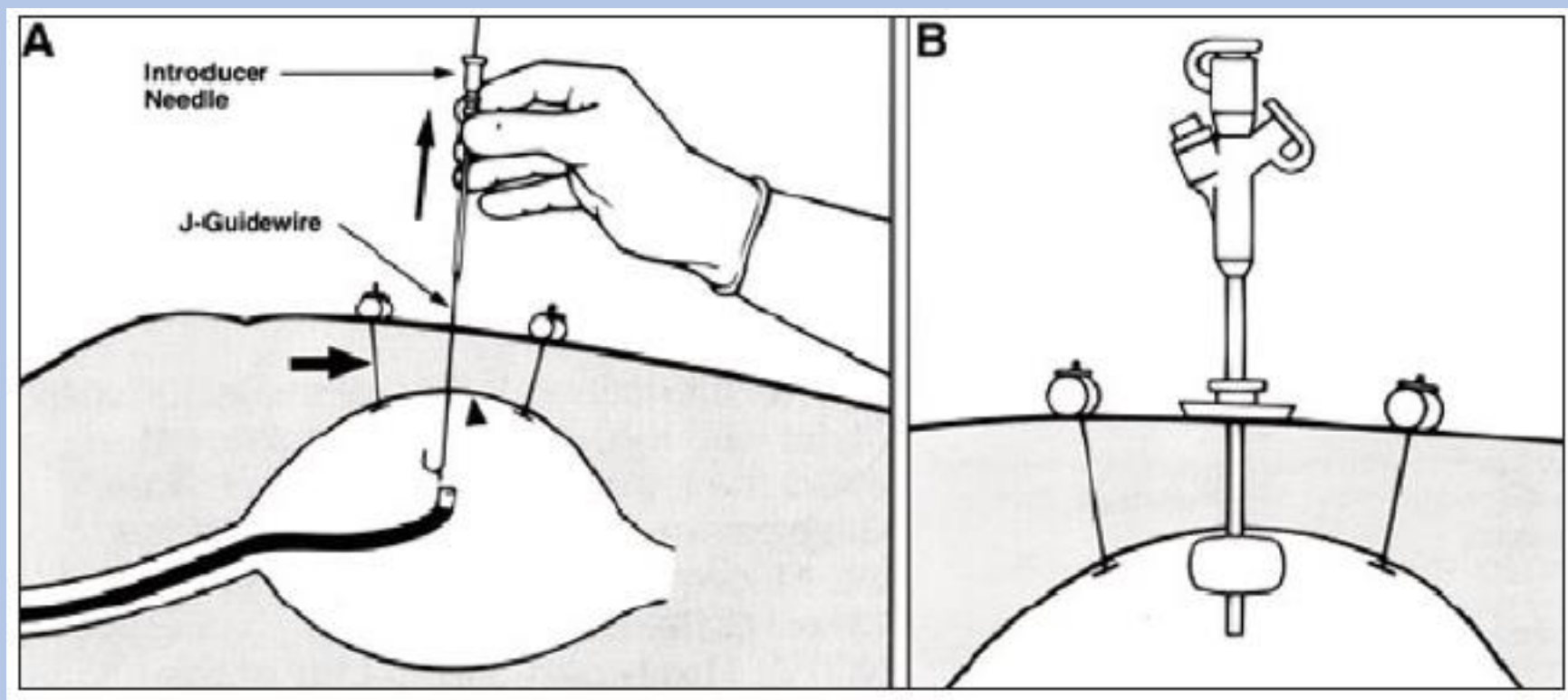
Percutaneous Endoscopic Gastrostomy – PEG



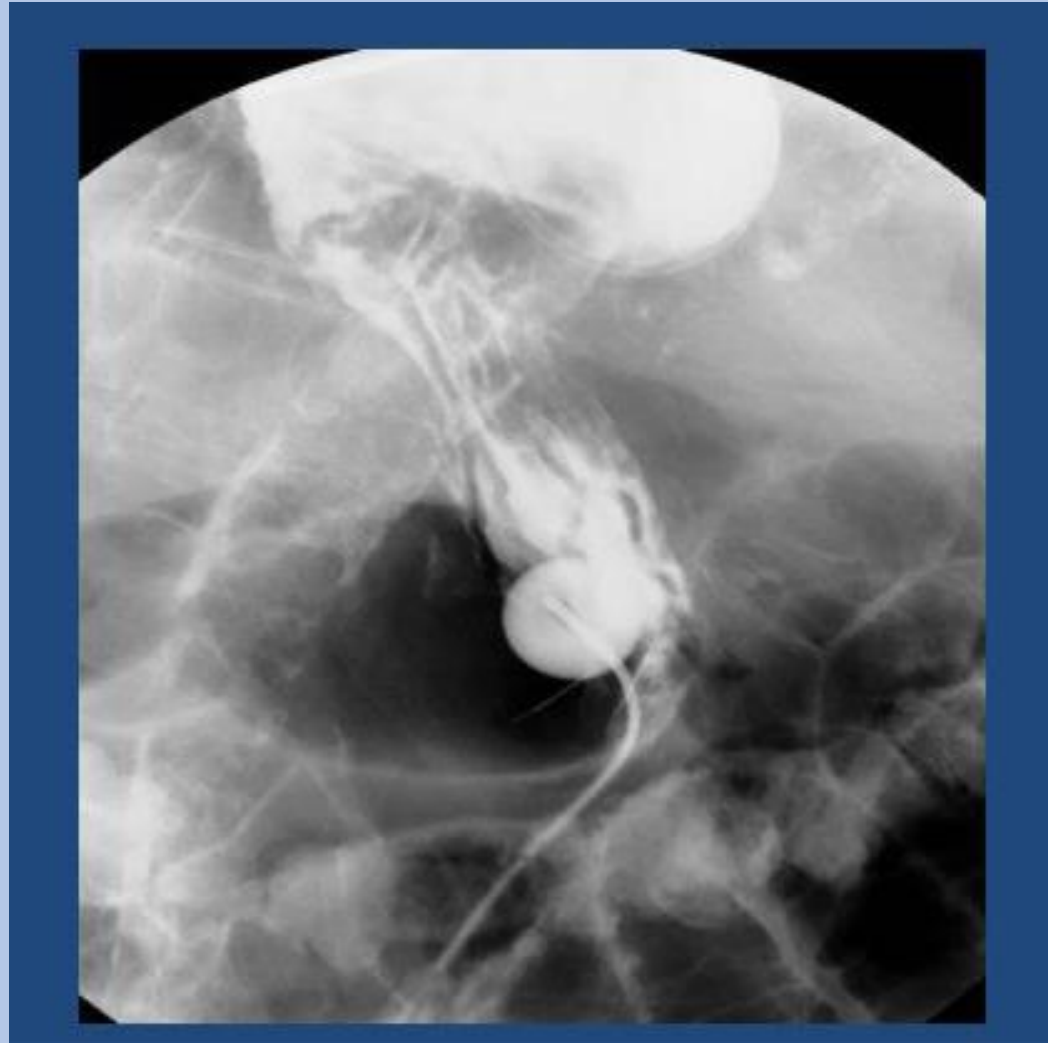
PEG Procedure



Radiologically Inserted Gastrostomy –RIG



Radiologically Inserted Gastrostomy –RIG



PEG or RIG

	Wollman <i>et al.</i> (mixed patients)		Current meta-analysis head and neck cancer	
	RIG	PEG	RIG	PEG
No. patients/procedures	837	4174	1098	1281
Successful tube placement (%)	99.2	95.7	98.4	92.5
Procedure related mortality (%)	0.3	0.53	1.8	2.2
Major complications (%)	5.9	9.4	8.9	7.4
Minor complications (%)	7.8	5.9	22.1	19.5

Indications

For nutritional support in patients with:

1. Malignant disease of the head and neck
2. Neurologic disorders
 - Amyotrophic lateral sclerosis
 - Multiple sclerosis
 - Stroke with residual deficits
3. Conditions that confer a high risk of aspiration
 - Esophageal disorders

Draining or venting gastrostomy tube

- Chronic gastric or small-bowel obstruction
- Altered gastric motility such as that due to metastatic disease

SIR Classification of Complications

Minor complications

A. No therapy, no consequence

B. Nominal therapy, no consequence; includes overnight admission for observation only

Major complications

C. Requires therapy, minor hospitalization (< 48 hours)

D. Requires major therapy, unplanned increase in level of care, prolonged hospitalization (> 48 hours)

E. Permanent adverse sequelae

F. Death

Potential Complications

Complications	Complication Rate (%)
Minor complications	
Overall	7.8
Tube occlusion	4.5
Tube dislodgement	1.3–4.5
Leakage	11.4
Superficial peristomal infection	Up to 45
Major complications	
Overall	1.4–5.9
Death due to procedure	0.3
Peritonitis	1.3
Hemorrhage	1.4
Colonic perforation	Minimal
Severe skin infection	Minimal

Minor complications

Tube occlusion

Adequate catheter care – (e.g., flushing)

Tube exchange over Amplatz wire

Tube dislodgment

Adequately secure catheter after placement

Gastrostomy tube “rescue” (up to 87% success rate)

Leakage around tube

Secure tube properly after insertion

Tube repositioning, exchange, or upsizing, or conversion to a gastrojejunostomy tube

Superficial stomal infection

Meticulous wound and wound site care

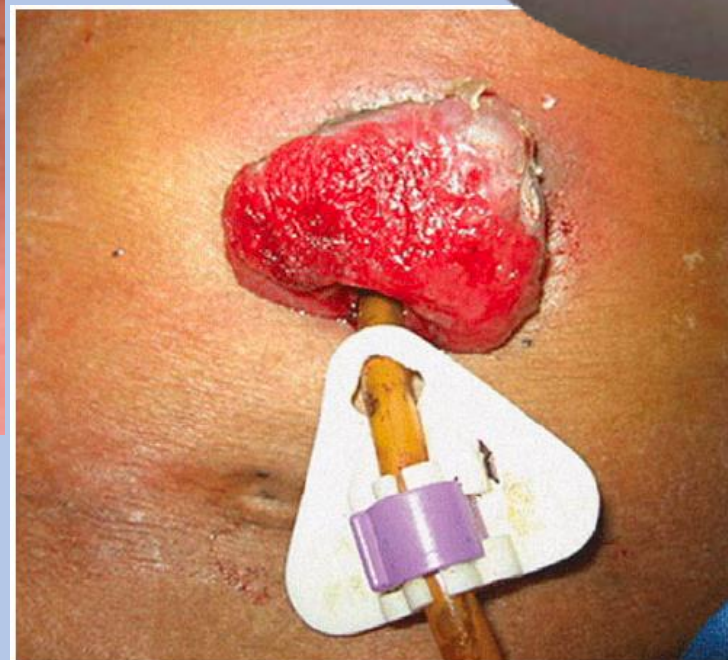
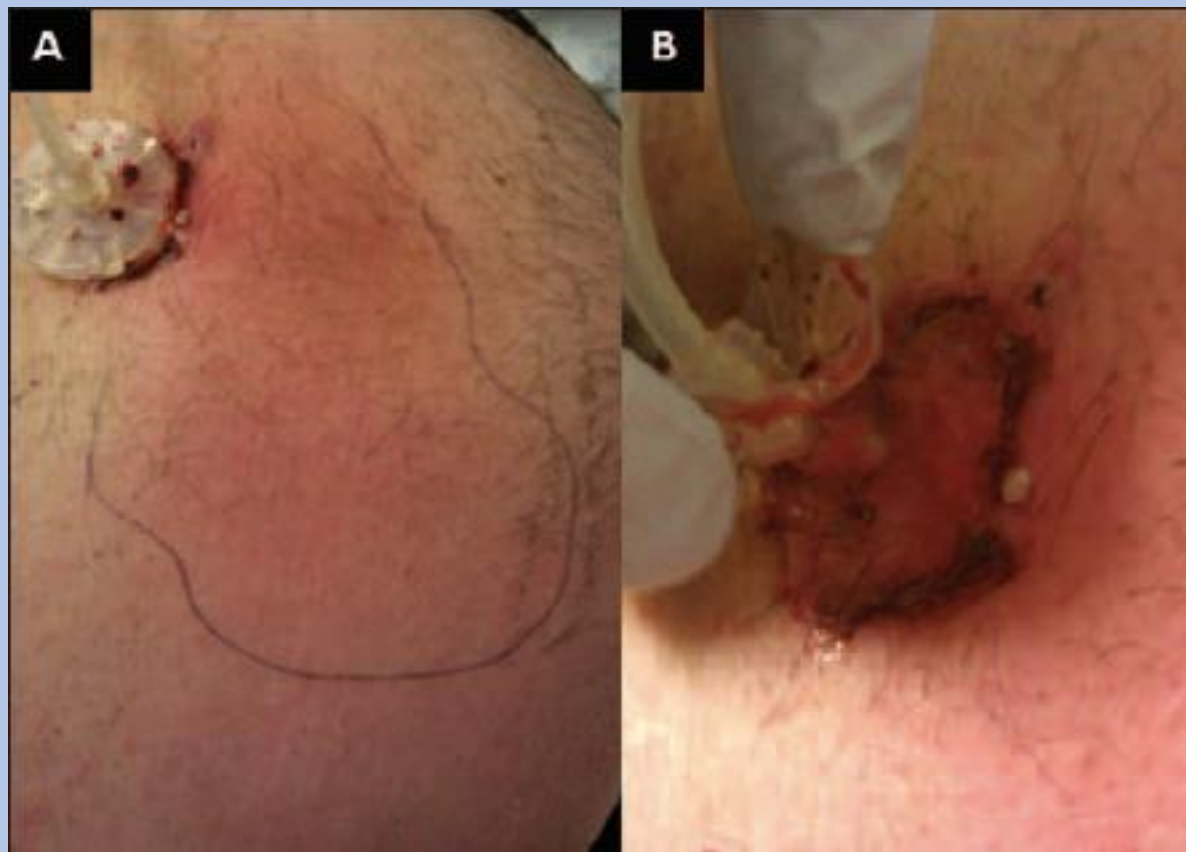
Course of antibiotics

Minor bleeding related to tube

Ensure good positioning of tube after insertion

Supportive care, tube repositioning (or both)

Minor complications



Major complications

Deep abscess

Use proper sterile technique and avoid injury to bowel

Percutaneous drainage; may require removal of gastrostomy tube

Bowel perforation

Ensure adequate visualization of transverse colon using barium or air, insufflate stomach before puncture

May require surgical intervention with bowel resection depending on severity

Peritonitis

Use proper sterile technique; avoid injury to bowel and adequate catheter care

Broad-spectrum antibiotics with supportive care; percutaneous drainage, surgical intervention, or both as needed

Hemorrhage

Awareness of anatomy of the perigastric vessels

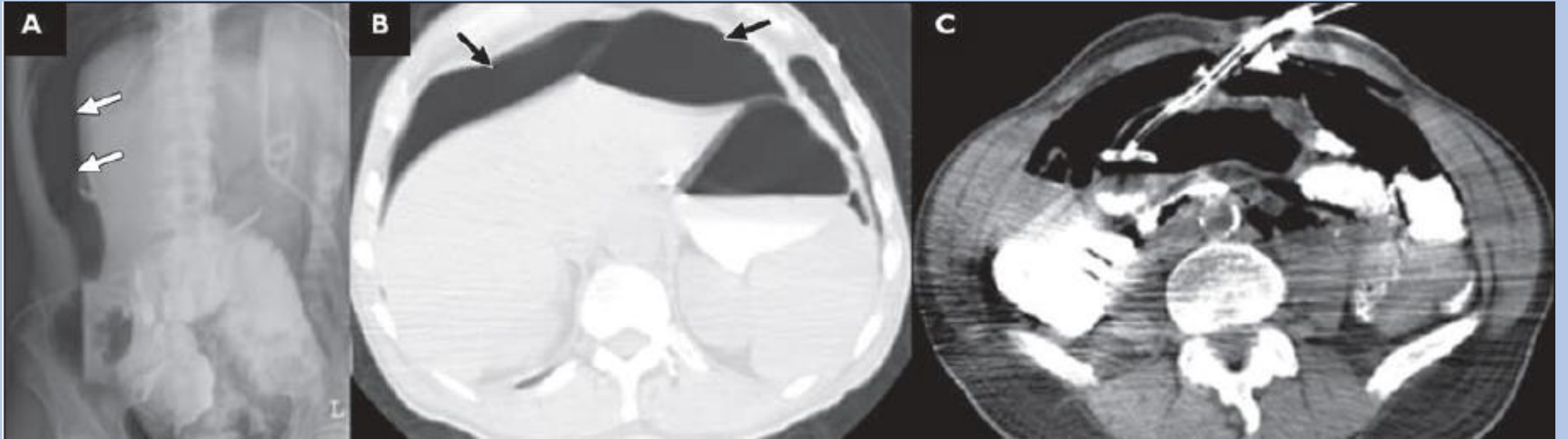
Supportive measures such as transfusion; endoscopic therapy; or angiographic evaluation and embolization

Skin-related complications

Meticulous gastrostomy-tube care, early intervention with preventative measures when problems arise; early involvement of dedicated stoma team

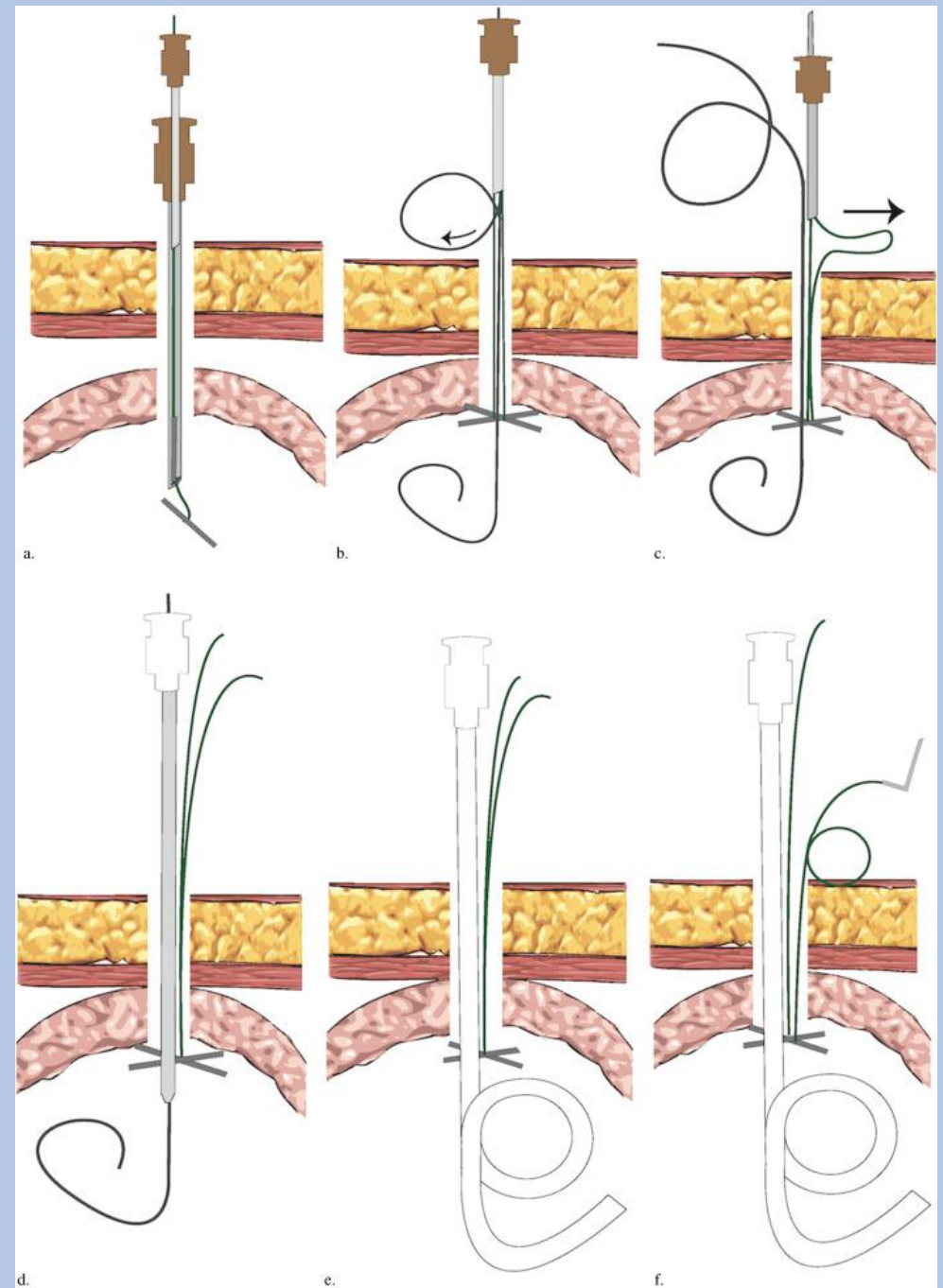
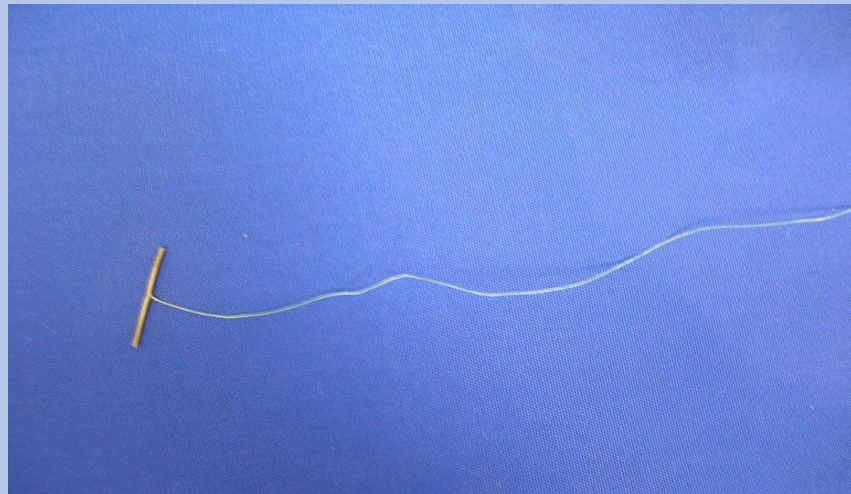
Treatment is difficult, with limited options available; best strategy is prevention

Transcolonic

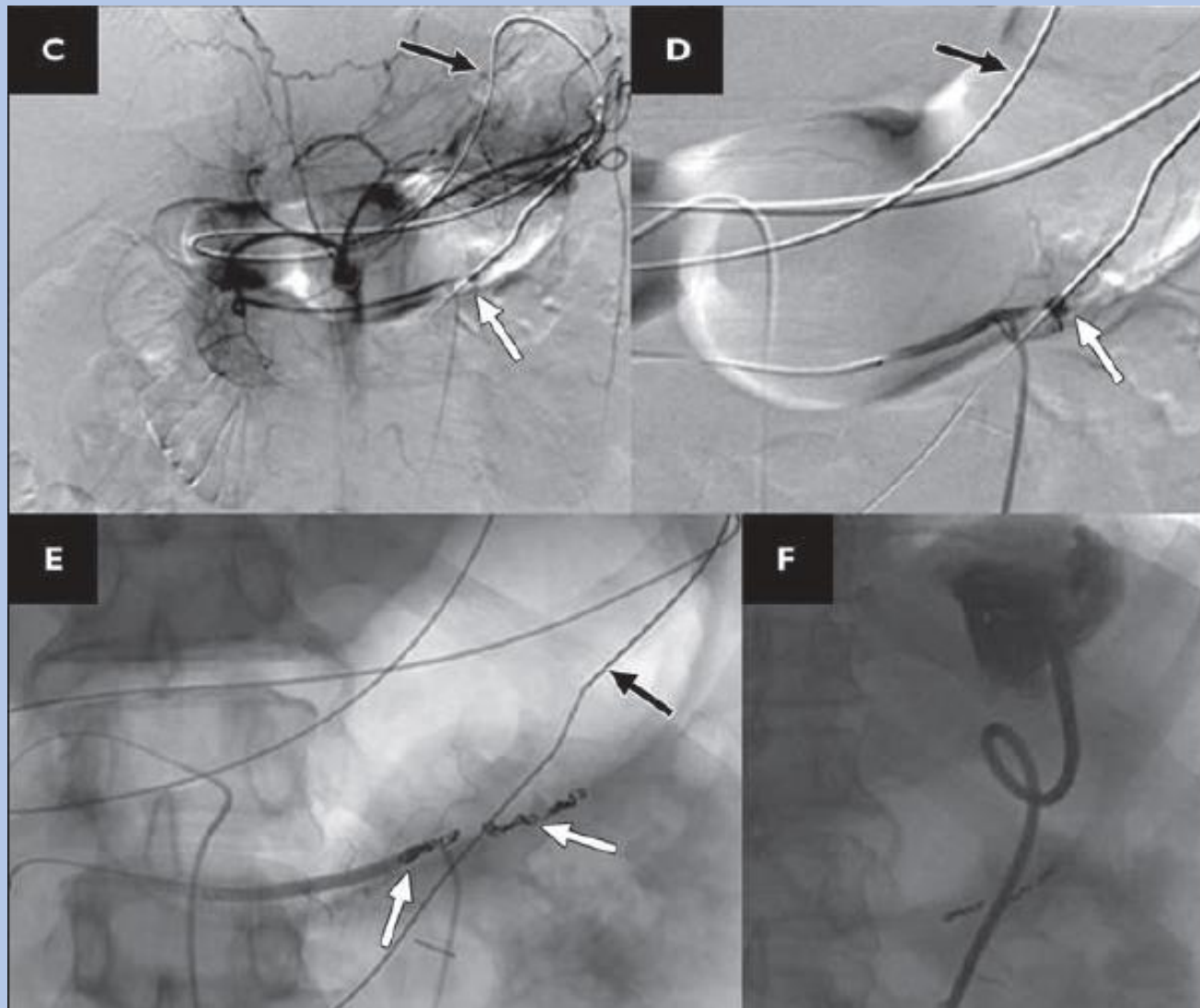
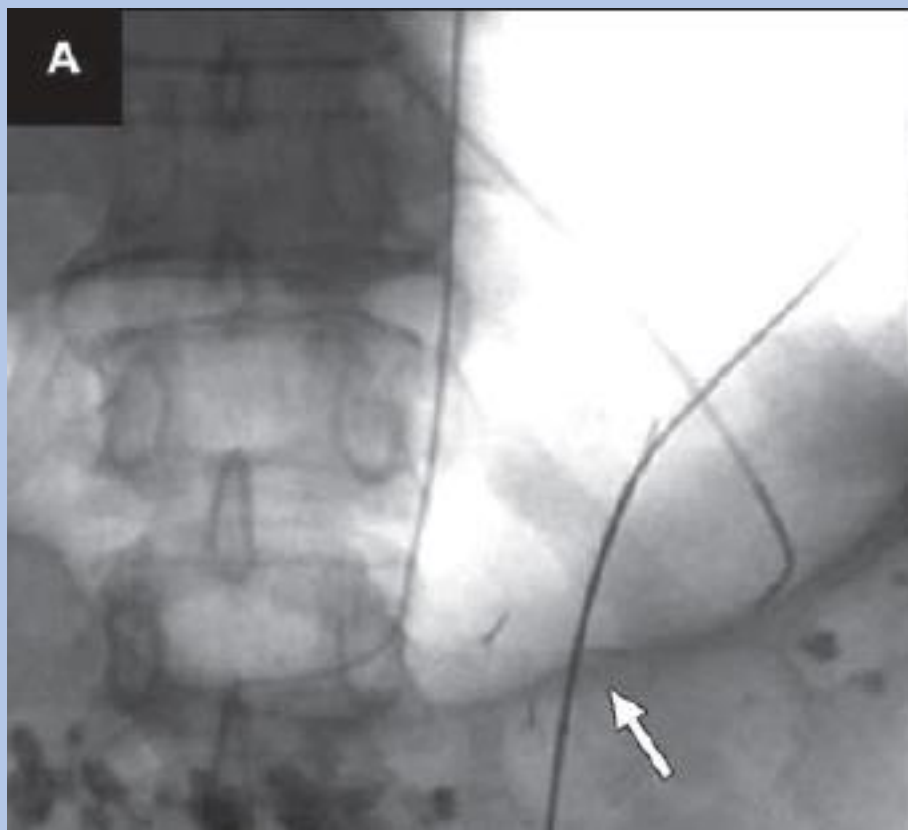


- Review of available imaging to rule out intervening viscera
- Preprocedural contrast ingestion (Gastrografin)
- Adequate distention of stomach
- Gastropexy

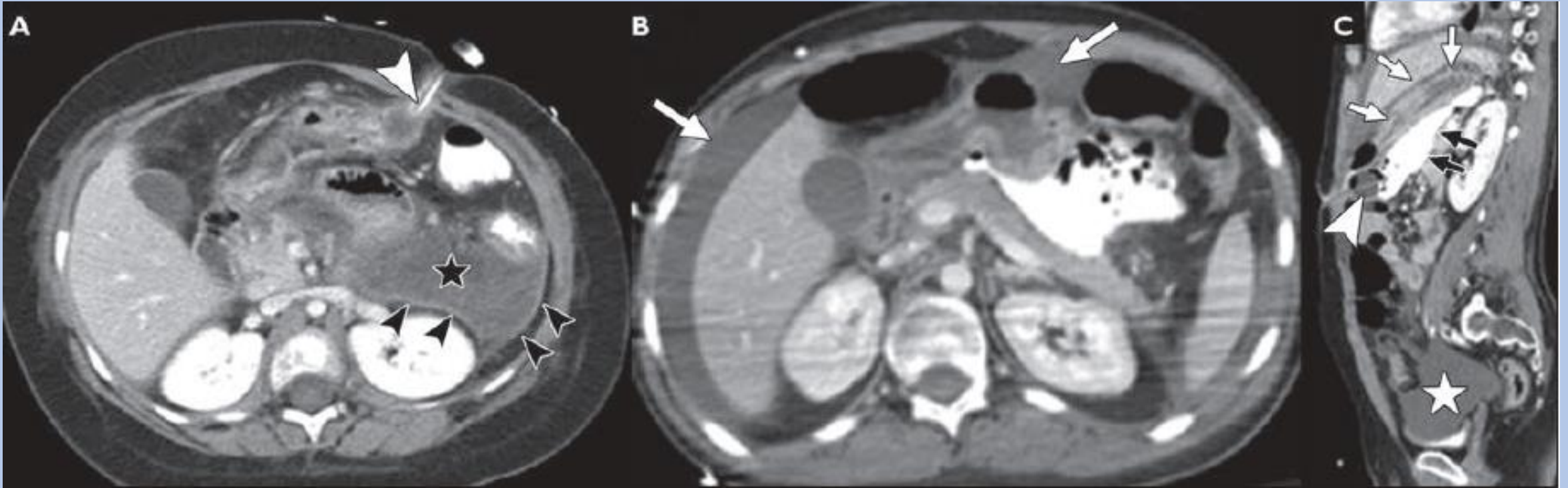
Gastropexy



Vascular Injury



Persistent leakage, Peritonitis



Gastropexy

Avoid tension and tight apposition

Conclusions

- Percutaneous Radiologically guided enteral access is safe
- Majority of the complications can be avoided by meticulous preprocedural imaging, gastropexy, adequate distention of stomach and use of muscle relaxants
- Infection can be prevented by good procedural asepsis
- Minor complications can be managed safely without compromising the access