

# Interventional techniques for cancer pain management

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# Incidence of cancer pain in various type of cancer

Pain caused by cancer	65%
Pain caused by anti cancer therapy	25 %
Post surgical, radiation, chemotherapy related pain,	
Coincidental pain	10%
Headache Back pain Myofascial pain	

# Prevalence of cancer pain by primary site

Pancreas	80-100%
Bone	75-80%
Breast	50-100%
Lung	55-85%
Colon	50-95%
Lymphoma	20-70%
Leukemia	10-75%

# Number of pain sites reported by 100 cancer patients

One site	20%
Two sites	30%
Three sites	18%
Four sites	16%
Five sites	8%
Six sites	2%
Seven sites	4%
Eight sites	2%

# Various types of pain in cancer patients

- Nociceptive
- Myofascial
- Visceral
- Inflammatory
- Bone Nociceptor
- Neuropathic
- Therapy related
- Therapeutic Intervention

# Distribution of pain Characteristics in cancer patients

	N=118	
Somatic	16	13.6%
Neuropathic	30	25.4%
Visceral	20	16.9%
Mixed	52	44.1%

Paice et al., J. Pain Sympt. Sept 97

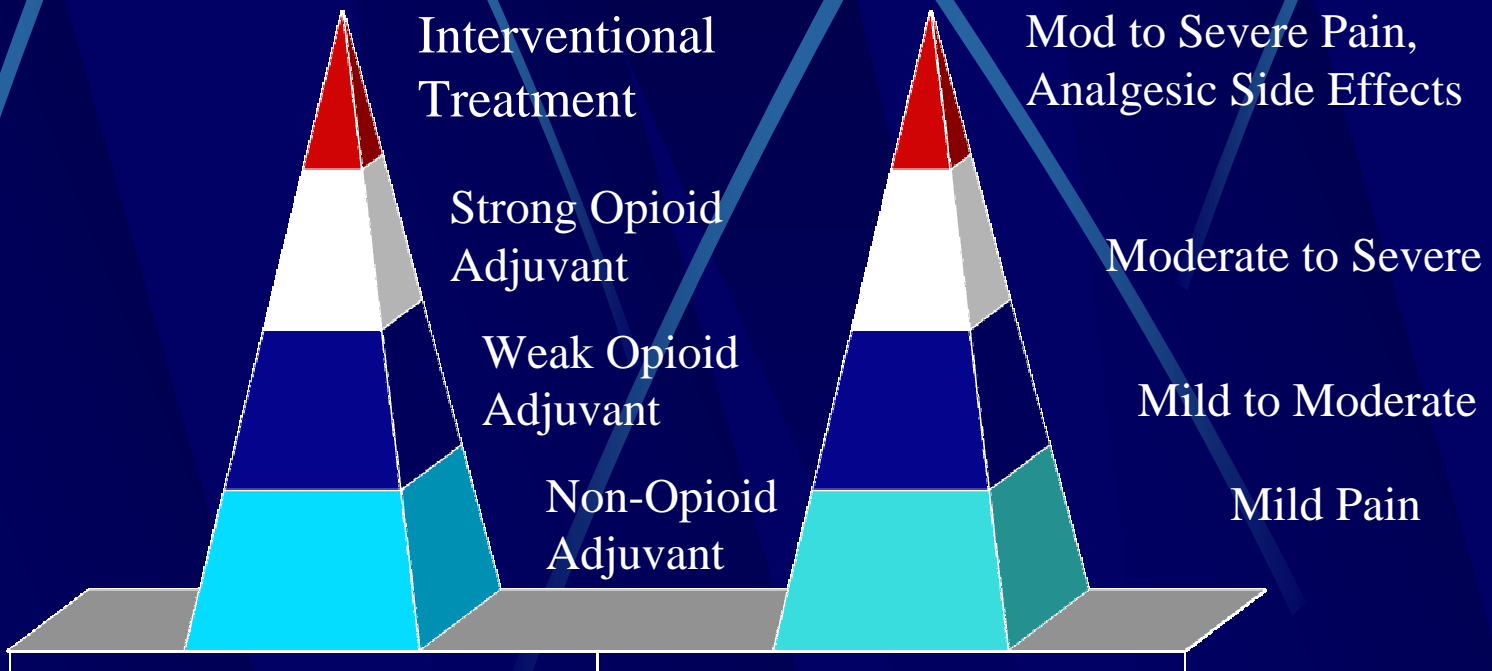


# Management of Pain

# Treatment Goals

- Diminish pain and associated emotional distress
- Increase physical, social, vocational, and recreational
- Optimize health
- Improve psychological well being
- Improve coping ability
- Reduce dependence on health care system

# Pyramidal Approach for Cancer Pain Management



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# Management of Upper Abdominal and Pelvic Pain

# Etiology of Upper Abdominal Cancer Pain

- Obstruction and distension of hollow viscera
- Autonomic plexus or vessel infiltration
- Somatic sensory nerve infiltration
- Peritoneal seeding
- Inflammatory reaction from tissue invasion

# Celiac Plexus Neural Blockade

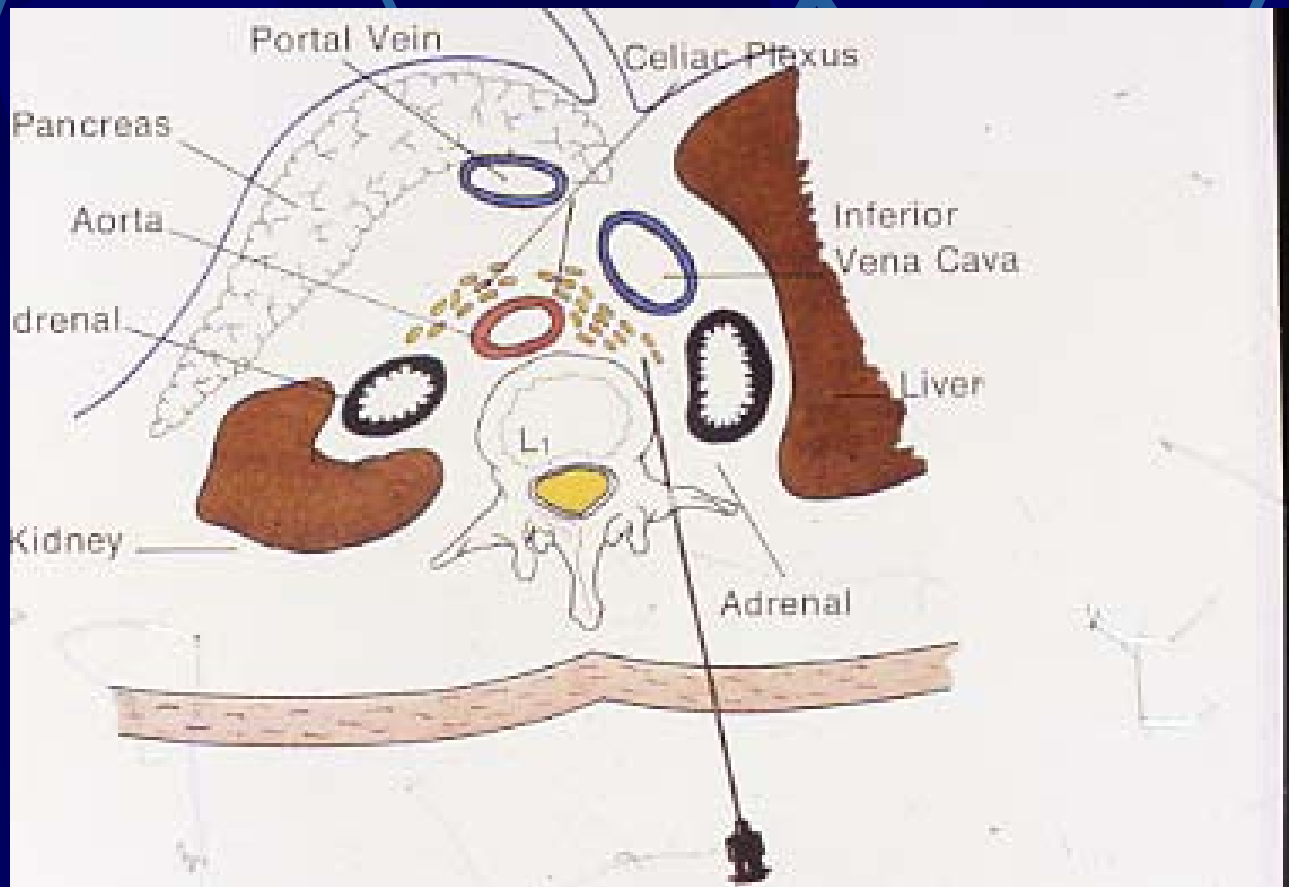
## ● Celiac Ganglia

- Two sets of ganglia. The average number are one to five
- Left side ganglia are lower than right side on average less than a vertebral level
- Size on both sides vary between 0.6-0.9cm below the celiac artery
- Size of ganglion varies between 0.5-4.5cm

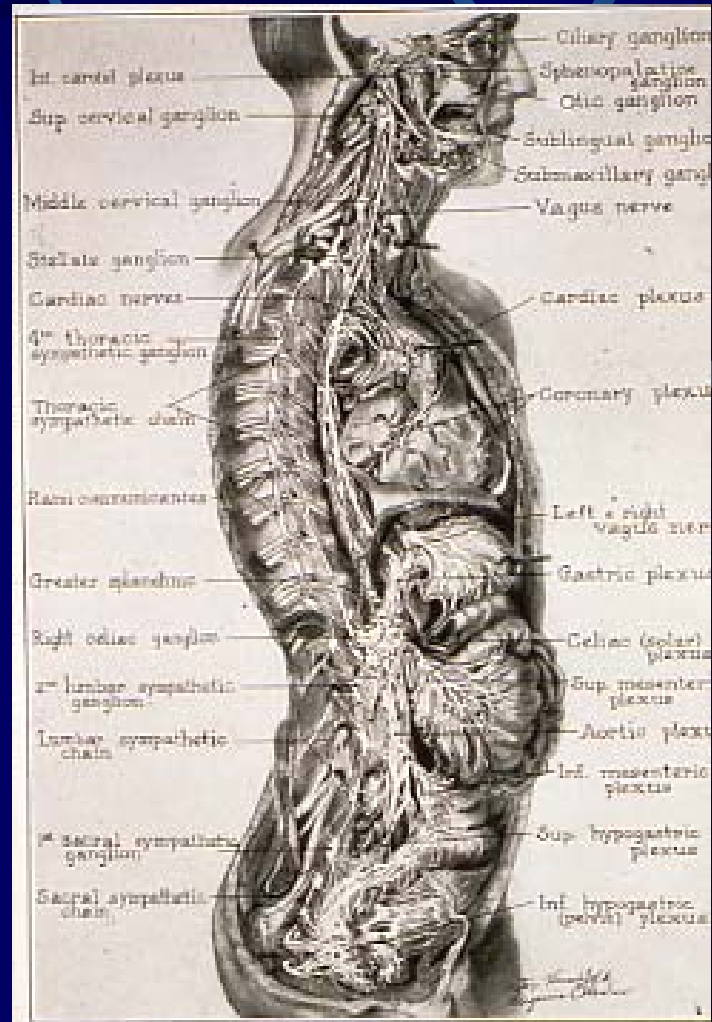
# Celiac Plexus

- Largest part of the sympathetic nervous system at prevertebral level of body of 1<sup>st</sup> lumbar vertebra
- Innervate abdominal viscera
- Contain visceral afferent and efferent fibers
- Also contains parasympathetic fibers from Vagus nerve
- Does not contain any somatic fibers
- Right sided ganglion lies medial to inferior vena cava, left side lies anterior to abdominal aorta

# Anatomical location of Celiac Plexus



# Sympathetic Chain



# Indication for Celiac Plexus Neural Blockade

- Intra abdominal visceral analgesia
- Upper abdominal surgery combining intercostal block and celiac block
- Intra-abdominal malignancy
  - Cancer of stomach
  - Pancreatic cancer
  - Gall bladder ca.
  - Adrenal mass
  - Common bile duct ca.

# Indications

- Chronic pancreatitis
- Diagnostic neural blockade
- Abdominal pain due to active intermittent porphyria
- Palliation of pain and jaundice
- Sclerosing cholangitis

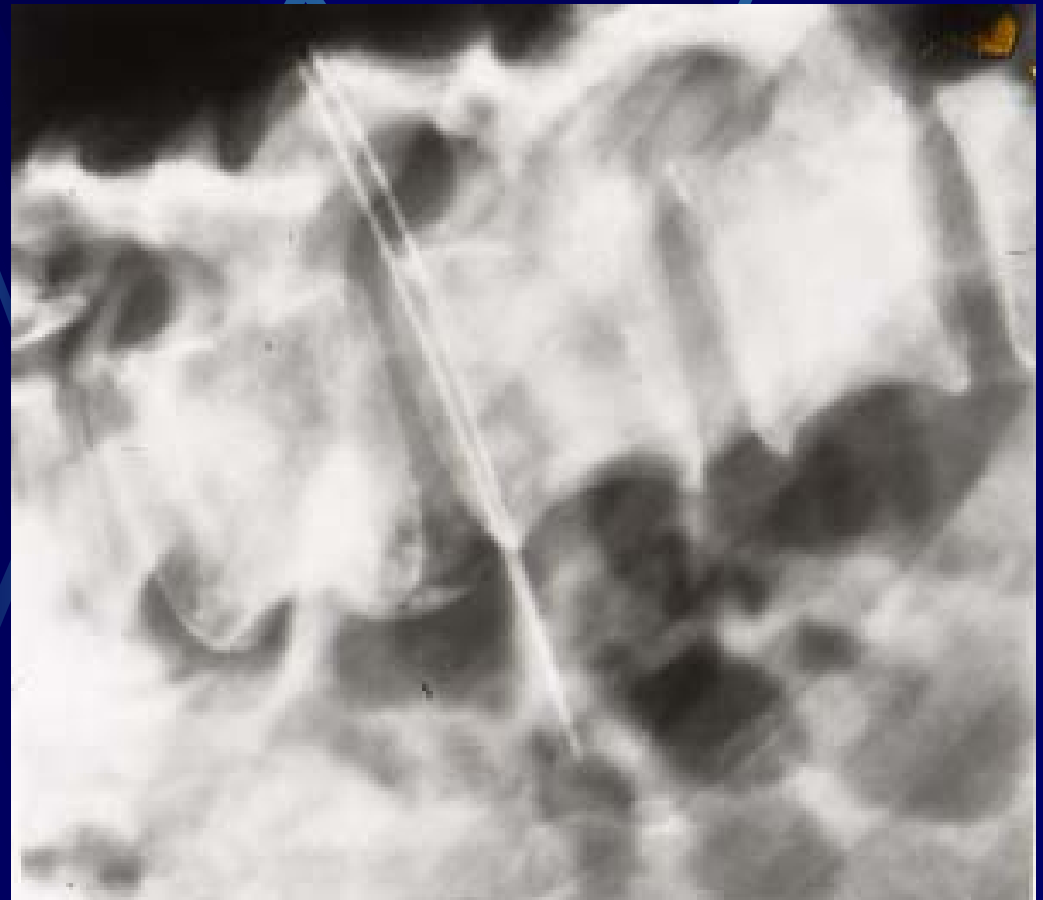
# Technological support for Celiac Plexus Block

- Radiological – Fluoroscopy / C-Arm
- CT guidance
- Ultrasonography
- MRI Guided
- Endoscopic

# Techniques of Celiac Plexus Block

- Posterior approach (Kappis)
- Anterior approach
- Trans aortic approach
- Trans intervertebral disc approach
- Intra-abdominal
- Retrocrural
- Transcrural celiac plexus block
- Continuous block via catheter

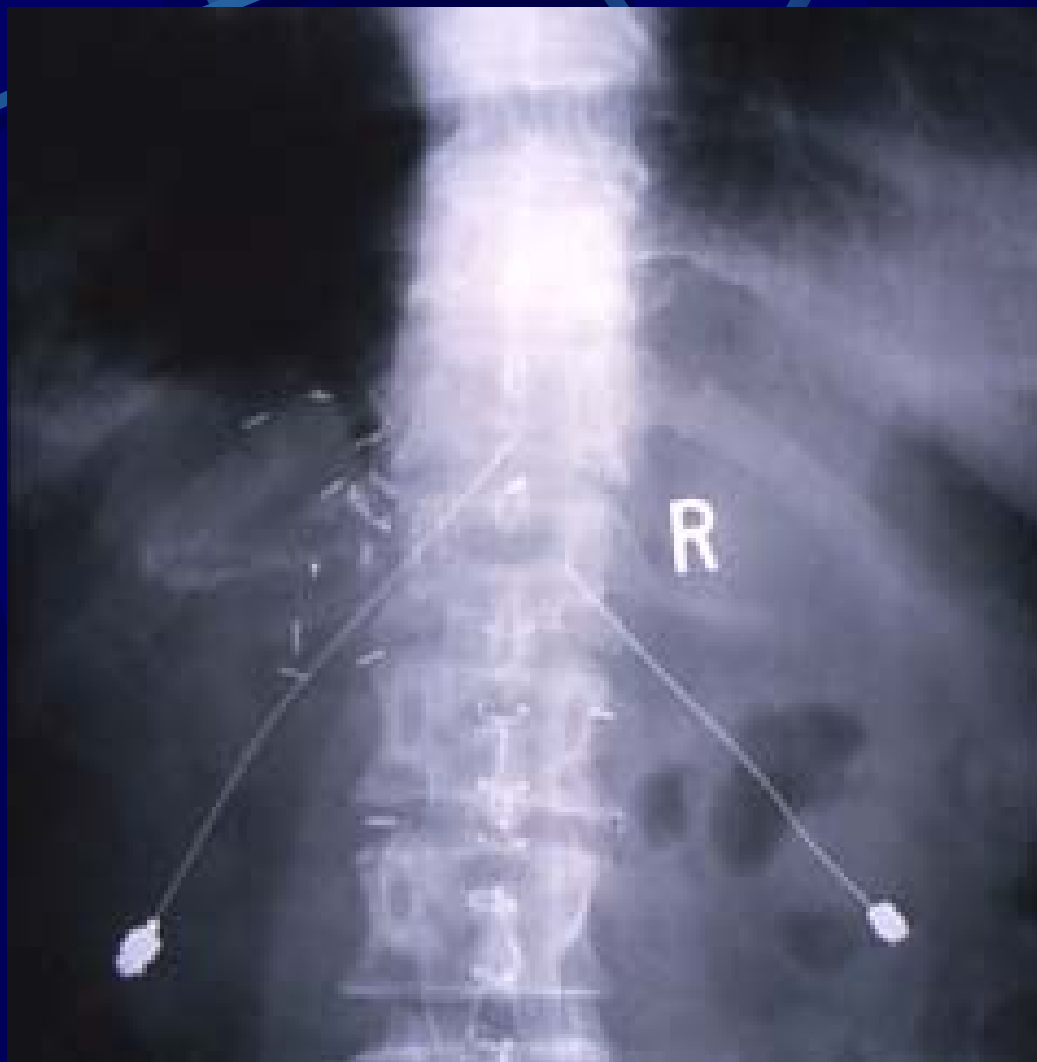
# AP and Lateral view of Celiac Plexus Block



# AP View with contrast



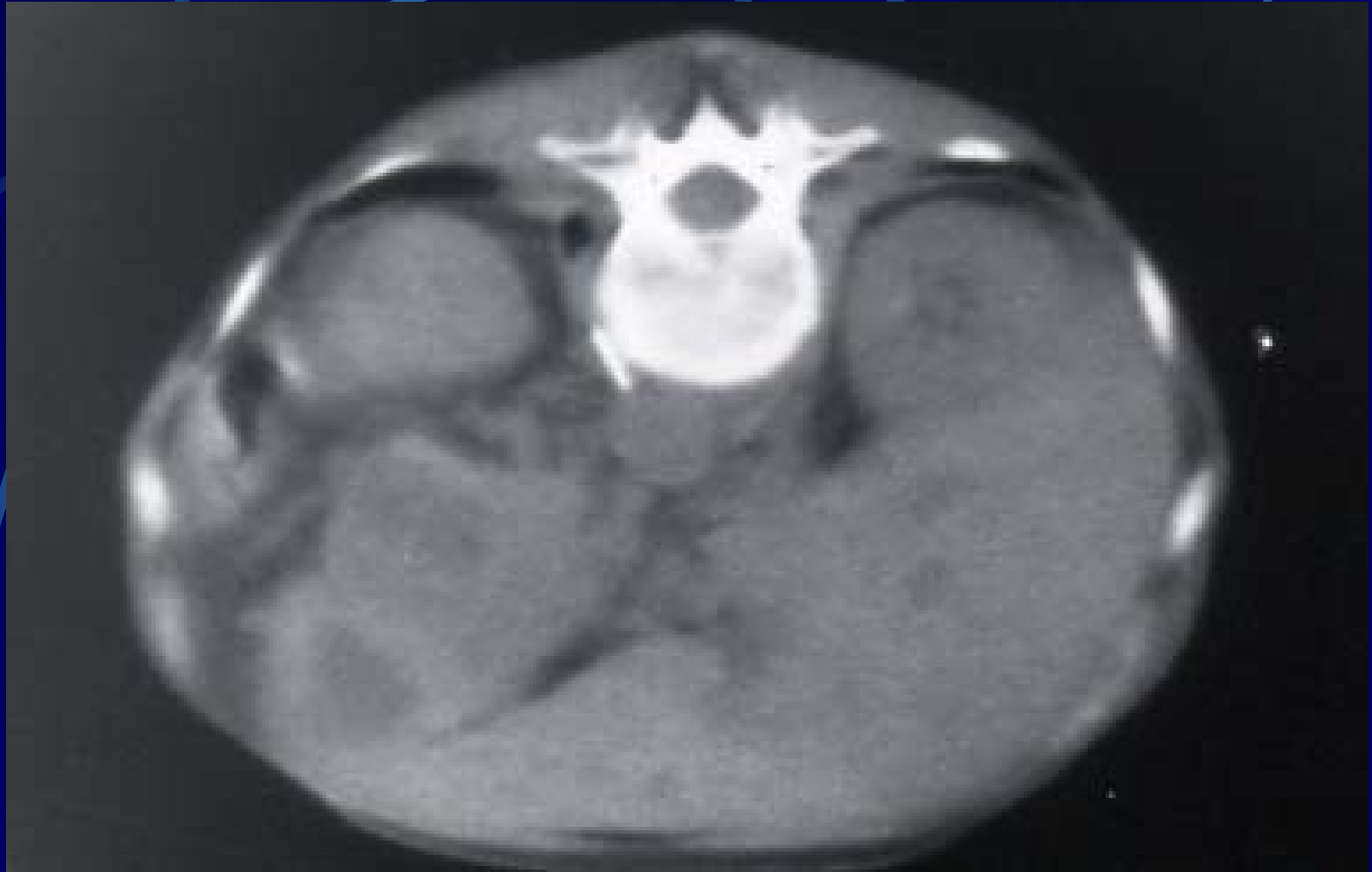
# Trans-aortic approach



# CT Guided Posterior Approach



# CT Guided Retrocrural



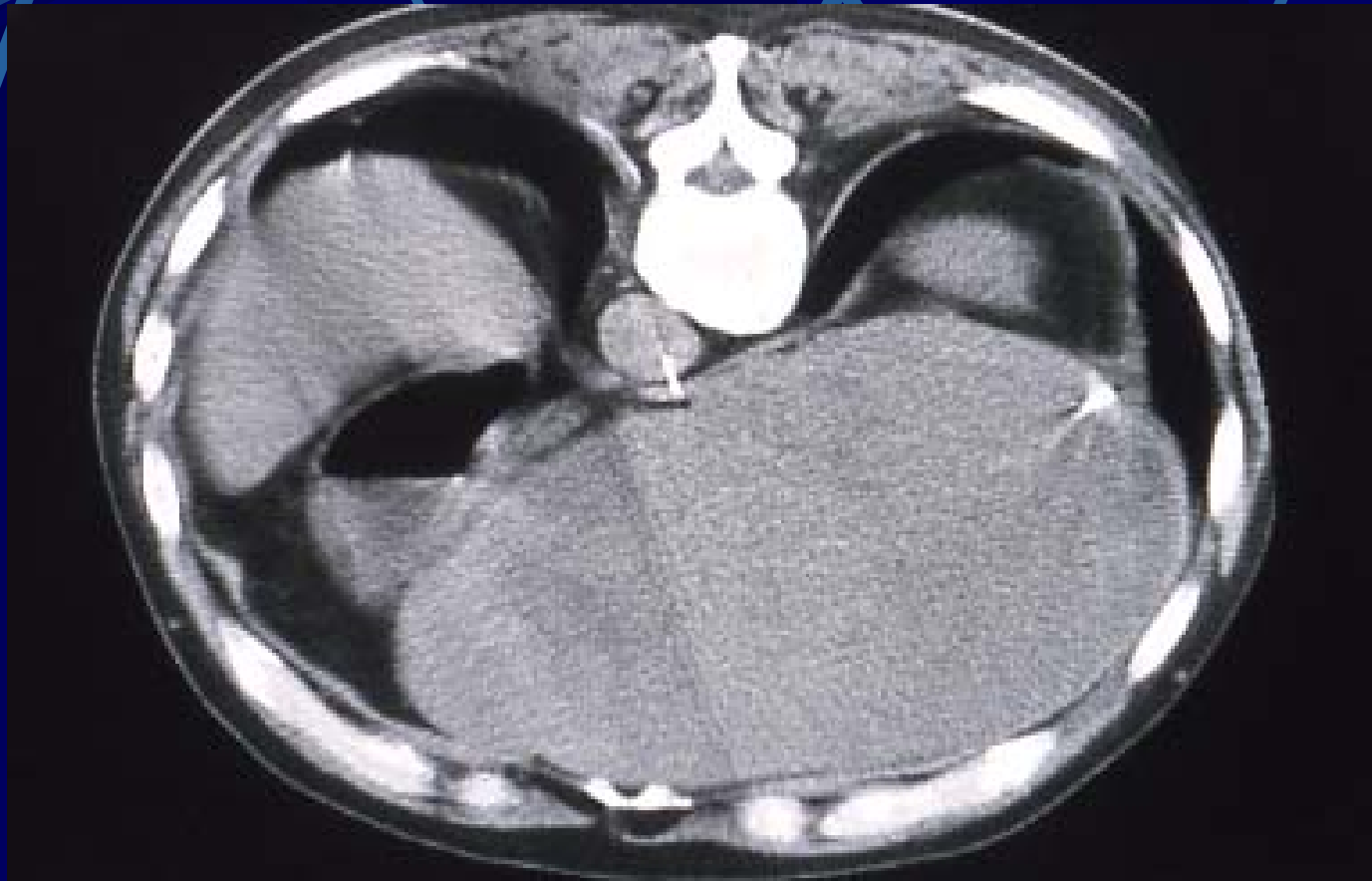
# CT Guided Celiac Block – Single needle technique



# CT Guided Trans-aortic approach



# CT Guided Trans-aortic approach



# Intraoperative Neurolysis

- Lillimore et al., AnnSurg. 1993;217:447-455
- Hayakawa J. et al., AnestAnalgesia 1997 Feb;84(20):447-8 Paraplegia
- Abdalla EK et al., J GastrointesSurg. 1999 Nov-Dec; 3(6): 668-671 Paraplegia following intraoperative celiac plexus block
- Kretazchmar et al., Zentrdbl chir. 2003 May; 128(5) 419-423

# Endoscopic Ultrasound Guided Celiac Plexus Block

- Das, K.M. et al., Clin. Radiology 1992 June 45(6) 401-3
- Gress F, Schmitt et al., Am. J. Gastroenterology 1999 Apr;94(4) 900-5
- Mathon G et al., J. Radiol. 2001 Jan;82(1):41-4
- Gress F., et al., Am J. Gastroenterology 2001 Feb; 96(2):409-16
- Abedi M., et al., J. Clin Gastroenterology 2001 May-June;32(5): 390-3
- Levy MJ et al., Gastrointestinal Endosc. 2003 June;57 (7):923-30

# Anterior Approach for Celiac Plexus Neurolysis

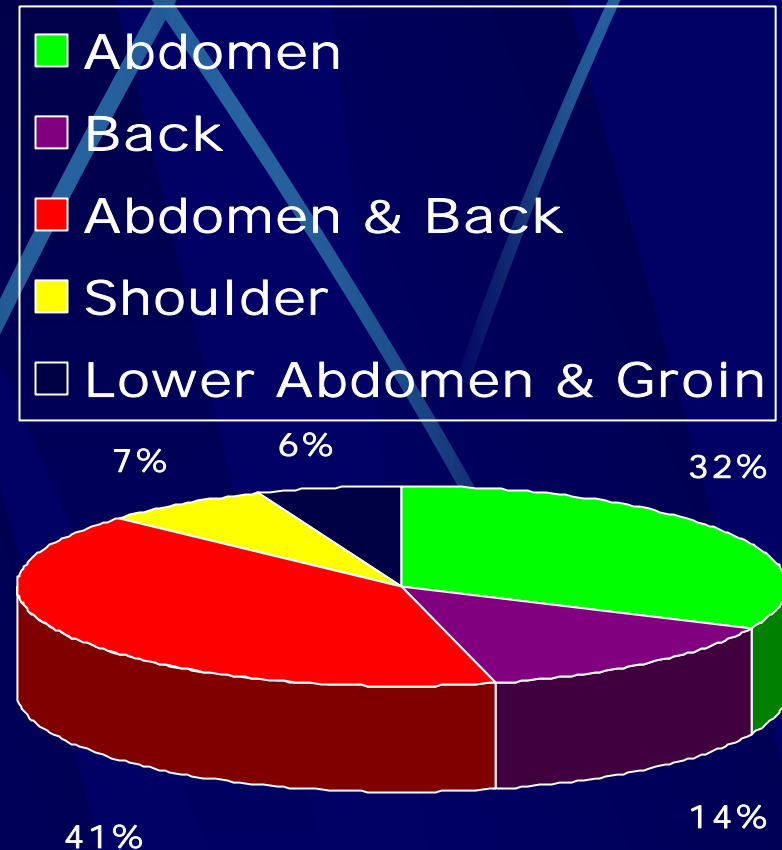
- Lieberman R. et al., Radiology 1988 May; 167(2) 562-4
- Matamala et al., Pain 1988 Sep; 34(3):285-8
- Notcutt W.G., Br. J. Anesth., 1990 Jan 64(1):126
- Gimenez, A., et al., AmJRoentogenol 1993 Nov;161(5):1061-3
- Marcy Py et al., Europ J. Surg. Oncol 2001 Dec; 27(8):746-9

# CT Guided Anterior Approach



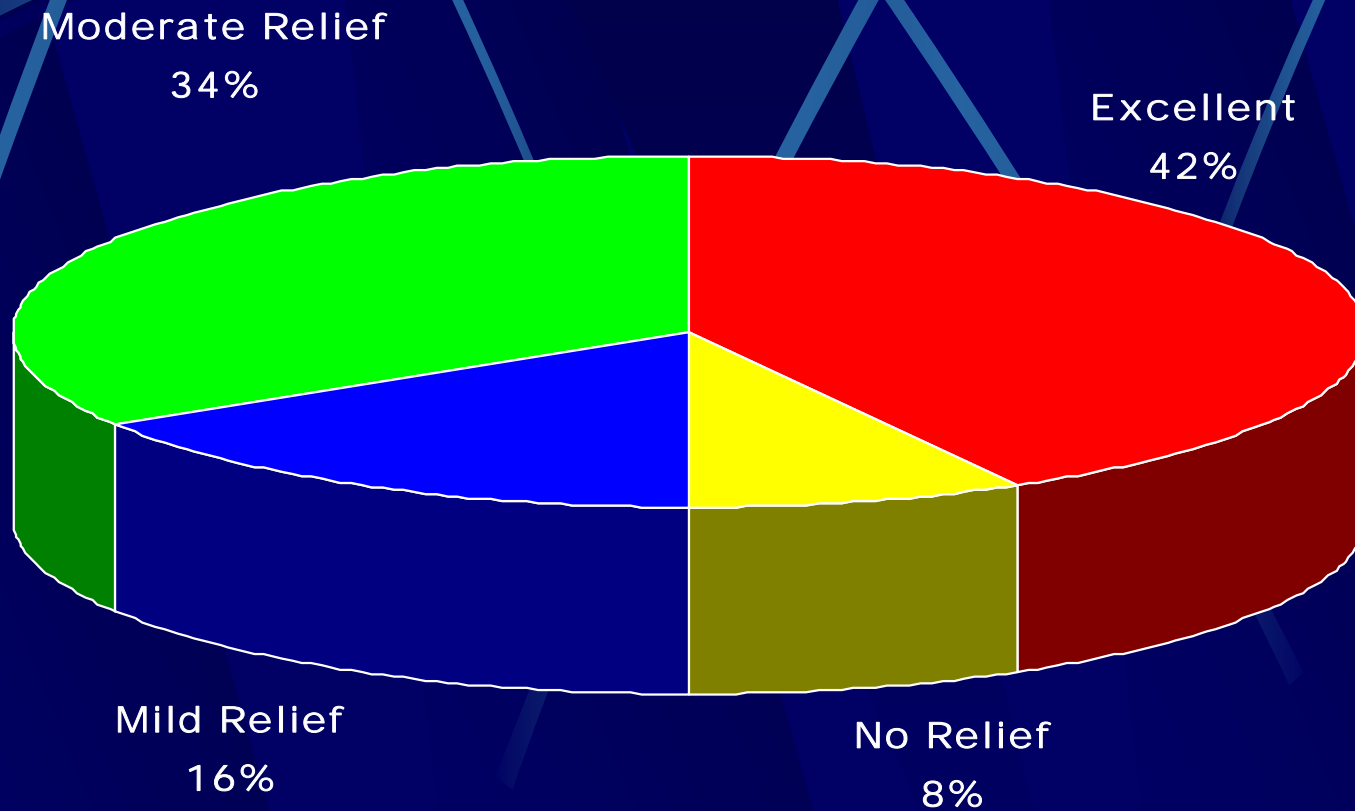
# Celiac Plexus Block for Cancer Pain Management

- n=146
- M:F = 82:64
- Age: 63.3 ±5 years
- 60 of 146 patients unresectable masses
- 68 of 146 patients with previous surgery
- Mean time from diagnosis = 202 days



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# Results of Celiac Plexus Block, n=146



# Explanations for Failed Celiac Plexus Blockade

- Distorted anatomical relationships
  - Ascities
  - Organomegaly
  - Tumor bulk
  - Obesity
- Post-radiation changes
- Post-surgical changes
- Peritoneal seeding
- Surgical clip interference

# Complications of Celiac Plexus Block 1:683 Block

- Orthostatic hypotension
- Transient shoulder pain
- Paraplegia
- Pericarditis
- Paraparesis
- Disulfiram-like reaction (Anesthesiology 1987)
- Splenic Necrosis
- Chemical Peritonitis

# Complications of Celiac Plexus Blockade

- Visceral Injuries
  - Renal pelvis
  - Uretral
  - Adrenal
  - Gastric
  - Hepatic
- Vascular injuries
  - Aortic, Celiac, Superior mesenteric
  - Inferior vena cava
  - Renal

# Complications of Celiac Plexus Block

- Neurological injuries
  - Paraplegia, hemiplegia
  - Somatic neuritis
  - Sexual dysfunction
- Musculoskeletal and cutaneous injuries
  - Discal perforation
  - Periosteal reaction
  - Tract deposition of neurolytics
  - Backache

# Trans-discal spread of radio-opaque solution



# Complication of Celiac Plexus Block

- Superior mesenteric venous thrombosis
- Chronic Diarrhea
- Corticosteroid induced mania
- Anterior spinal artery syndrome
- Chylothorax
- Aortic dissection
- Urinoma
- Discitis
- Aortic Pseudoaneurysm
- Retroperitoneal fibrosis

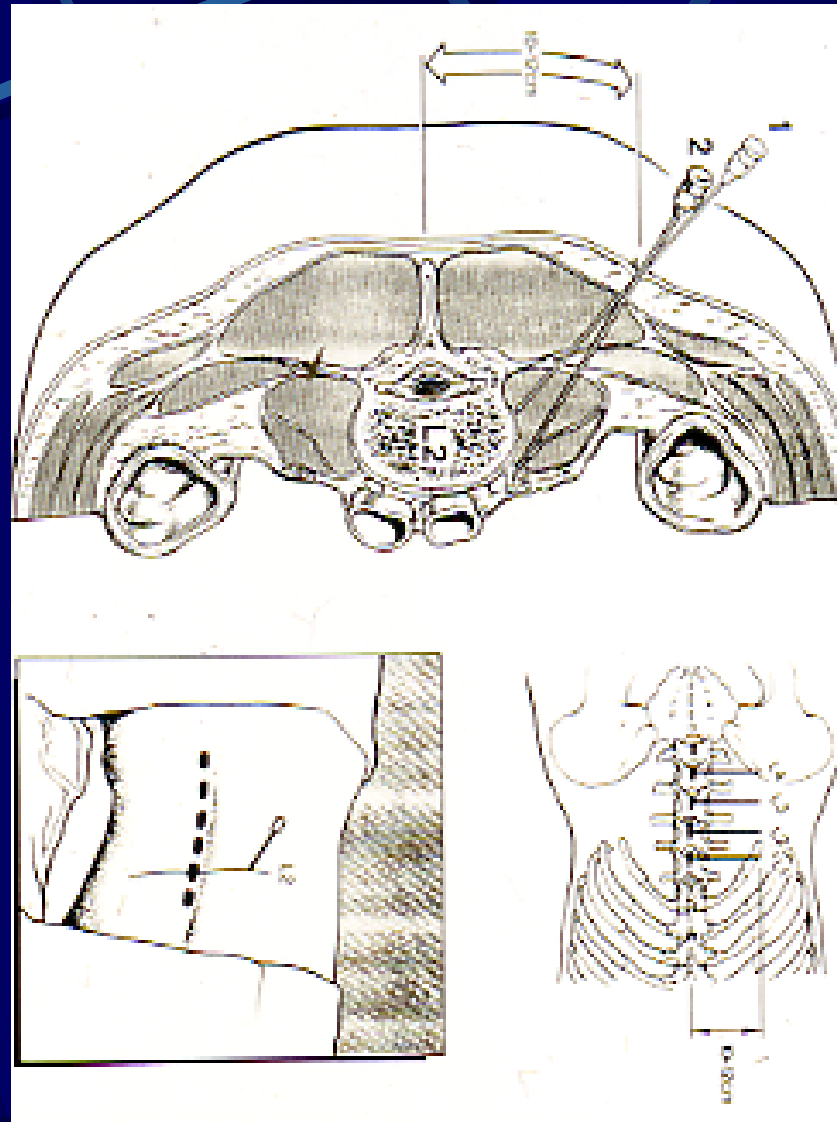
# Spinal Cord Insult

- Aortic aneurysm
- Aortic dissection
- Aortic Rupture
- Thrombosis
- Ischemia
- Anterior spinal artery embolism
- A.V. Malformation

# Spinal Cord Insult

- Hematomyelia
- Epidural hematoma
- SLE
- Coagulopathy
- Decompression sickness

# Lumbar Sympathetic Block







# Superior Hypogastric Block



# AP view for superior hypogastric block



# Lateral view of Superior hypogastric plexus block



# Lateral view of Superior hypogastric plexus block



# Said enough



# Painless



Thank You!

