

به نام خدا

تکنیک های رادیوگرافی شکم

گردآوری :

کانال **RadioLOGY_IUMS**

آدرس اینترنتی :

[telegram.me/iumsradiology](https://t.me/iumsradiology)

The Abdomen

- **LEARNING OBJECTIVES**

- **Briefly describe the following common pathologies:**
 - **pancreatitis (chronic and acute)**
 - **small bowel obstruction**
 - **crohn's disease**
 - **ulcerative colitis**
 - **diverticula (diverticulitis)**
 - **cholelithiasis (cholecystitis)**
 - **renal obstruction and the effects of reflux**

The Abdomen

- **Demonstrate a knowledge of the radiographic anatomy of the abdomen**
- **Be able to identify the radiographic appearance of the following:**
 - **Small bowel obstruction**
 - **Cholelithiasis**
 - **Renal stones**

The Abdomen

- **Demonstrate a basic knowledge of the anatomy of the abdomen:**
 - **Gastrointestinal system**
 - **Renal system**
 - **Basic vasculature**
 - **Hepatobiliary system**
- **Demonstrate and describe the techniques used to image the abdomen-including extra views**

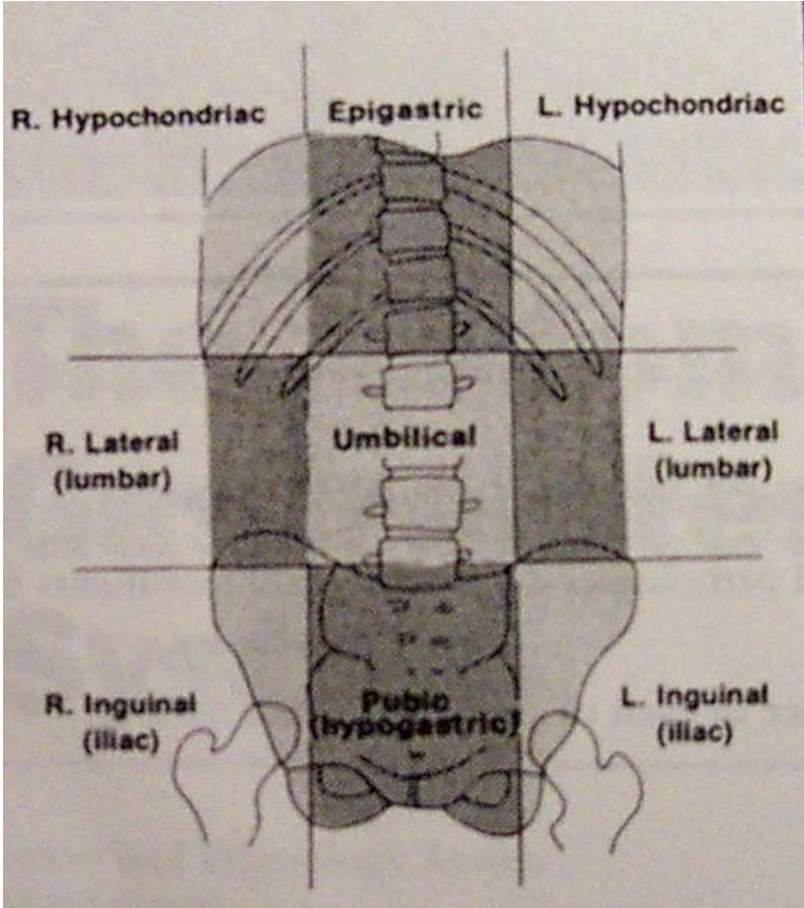
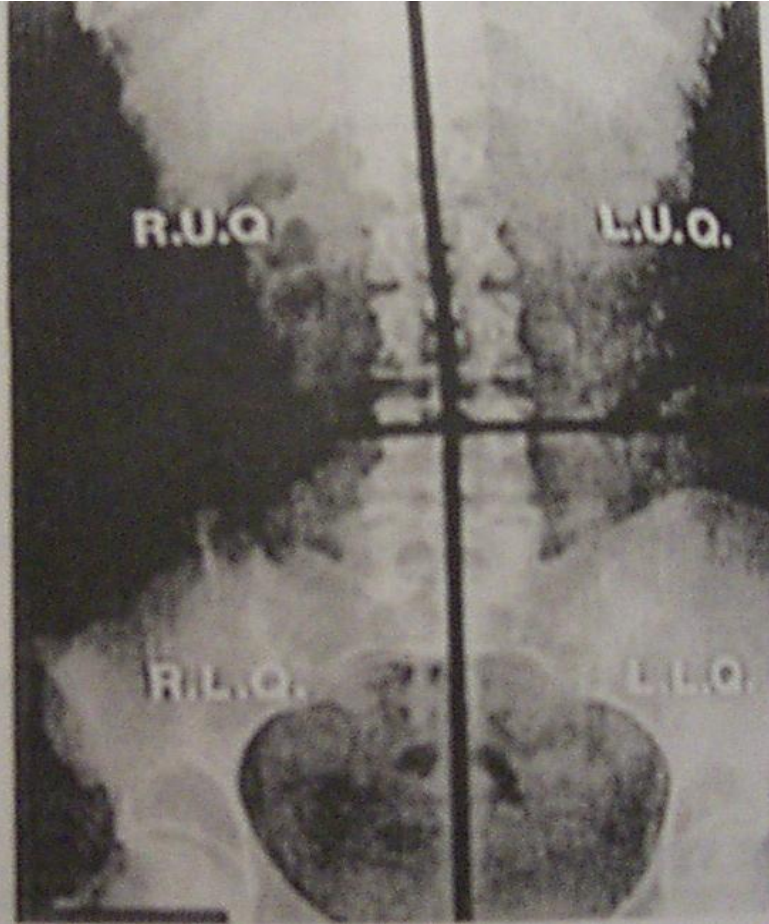
The Abdomen

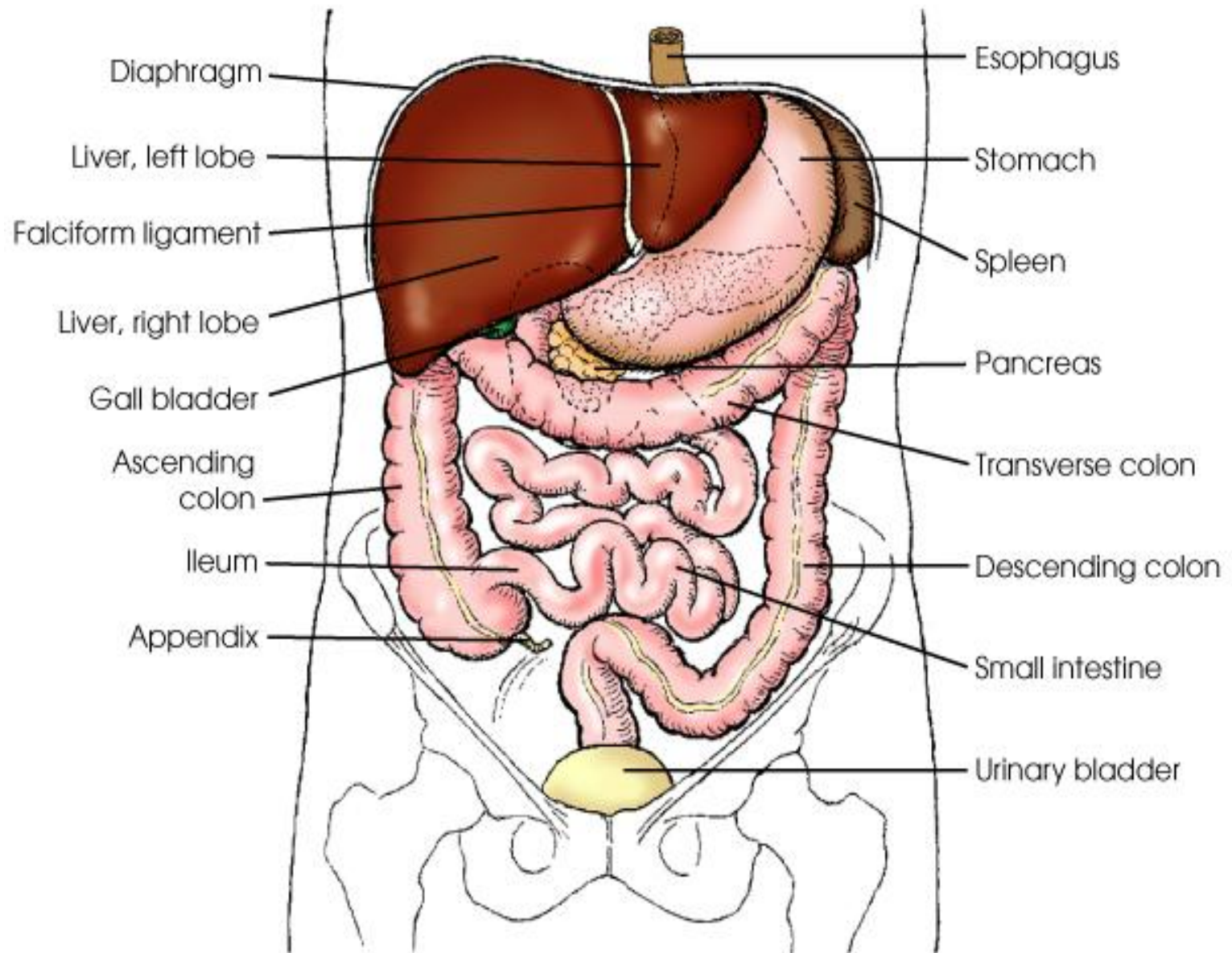
- **Critique for technical accuracy, images of the abdomen**
- **Name and label the quadrants and regional divisions of the abdomen**
- **Describe in detail the bony landmarks of the abdominal region**
- **Be able to identify abdominal structures in transverse sections**

The Abdomen

- **The abdominal cavity extends from diaphragm to the superior border of the bony pelvis**
- **Contains organs of the digestive system, reproductive system, renal system, lymphatic system**
- **Not all visible on plain film-some outlines**

Quadrants and regions





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The Abdomen

- **Abdominal series- acute abdomen- supine, erect & PA chest**
- **KUB-supine, renal area**
- **Alternative views-lateral, left lateral decubitus, decubitus**

The Abdomen

- **Patient Preparation**
- **Clothing removed-no buttons and bows, zips or bits**
- **Clean patient gown**
- **Room prepared**
- **Exposure selected-short exp time to reduce**

The Abdomen

- **AP SUPINE PROJECTION**
- **Centre tube to table bucky**
- **35 x 43cm IR portrait**
- **Patient flat on table**
- **Centre in mid sagittal plane at level of iliac crest**
- **Suspended expiration**



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The Abdomen

- **Image Critique**

- **Bony structures seen- pubic symphysis, lower ribs, pelvis, hips, straight, centred spine, transverse processes of lumbar spine**

- **Soft tissue structures seen-kidneys, liver, psoas muscles, spleen, bowel gas, urinary bladder, lateral abdominal walls**

The Abdomen

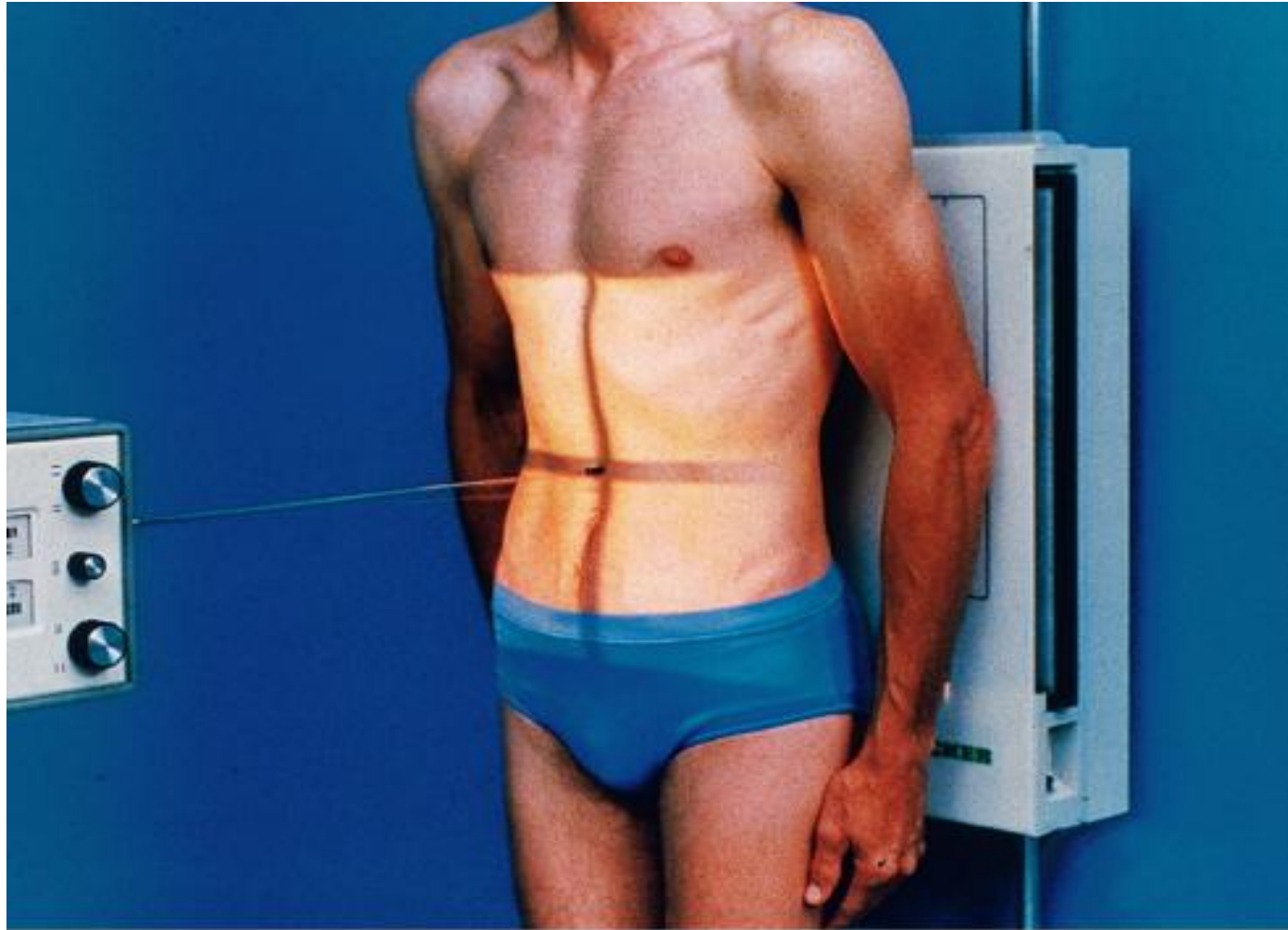
- **No patient motion**
- **Uniform density**
- **across abdomen**



The Abdomen

- **AP ERECT POSITION**
- **Centre x-ray tube to erect bucky**
- **35 x 43cm IR portrait**
- **Patient standing with back against upright bucky**
- **Centre midsagittal plane 5cm above the level of the iliac crests-if diaphragms needed on image**
- **If bladder needed centre to iliac crests**

The Abdomen



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The Abdomen

- **Held expiration-organs not compressed**
- **Exposure may need to be increased-soft tissue falls forward and down. Supine soft tissue is flattened.**
- **Patient should be upright for at least 10 minutes so any air in the peritoneum has time to rise and be seen under the diaphragms**

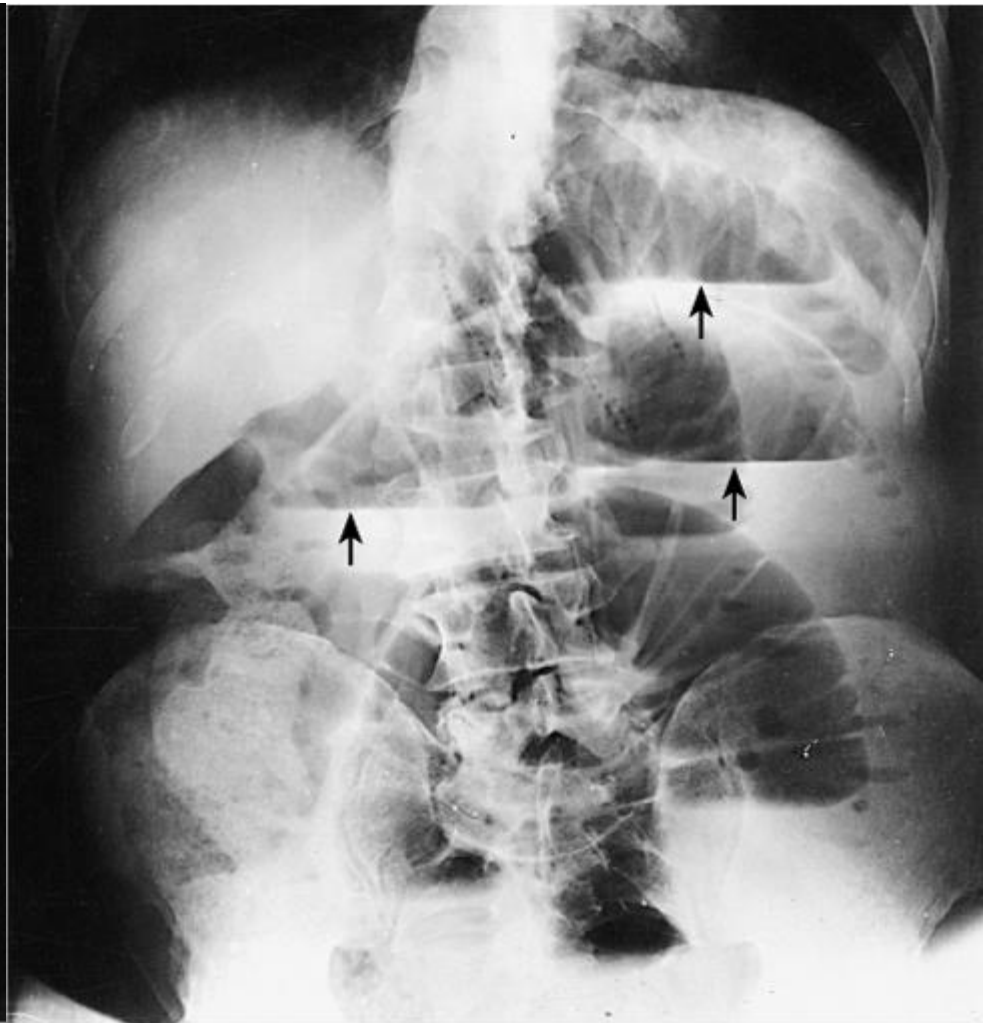
The Abdomen

- **Image Critique**
- **Same as supine abdomen**
- **Same film density as supine**
- **An erect marker**
- **Sequence-PA chest, erect abdo, supine abdo**



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Supine



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Erect •

The Abdomen

Renal •

Often referred to as KUB •

**Supine abdomen as well as coned down area of •
kidneys**

Taken on inspiration •

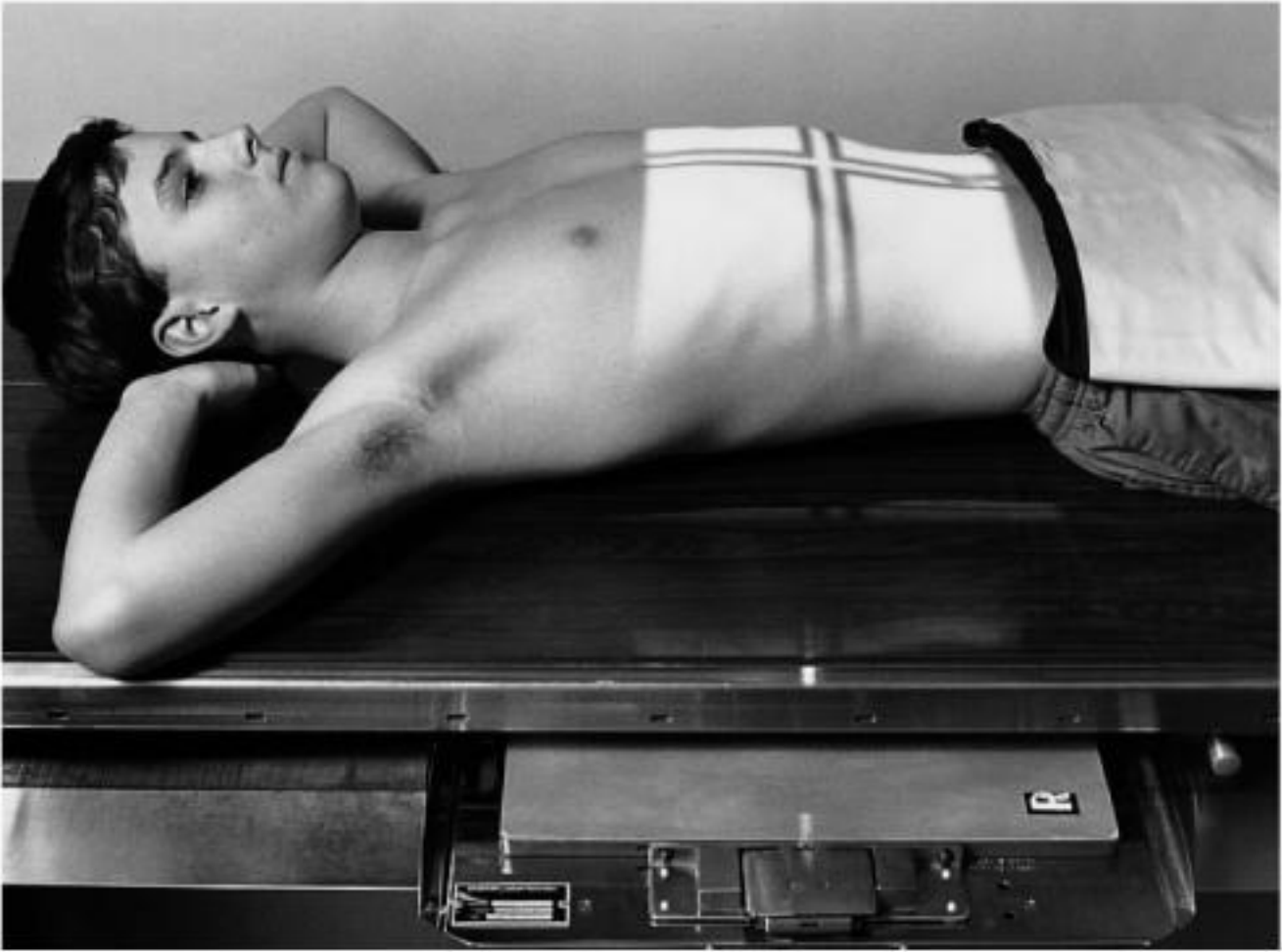
30 x 40cm IR landscape in table bucky •

The Abdomen

Centre midsagittal plane approx 4 finger down •

from xiphisternum (7cm)

Iliac crest at bottom of IR •



- Renal Area



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The Abdomen

Left Lateral Decubitus •

Can be AP or PA •

Patient too ill to stand or sit •

Lie patient onto left side •

**If possible wait a few minutes to allow any free air •
to rise**

The Abdomen

**Place a radiolucent sponge under right side to elevate •
so all abdomen can be seen**

Arms elevated away from body •

Knees slightly bent forward for support. •

Centre to iliac crests •

**May need slightly higher centring to have diaphragms •
on film**

The Abdomen

Stationary grid or upright bucky •

Suspended expiration •

**Right lateral decub may be requested of if patient •
can't lie on left side**

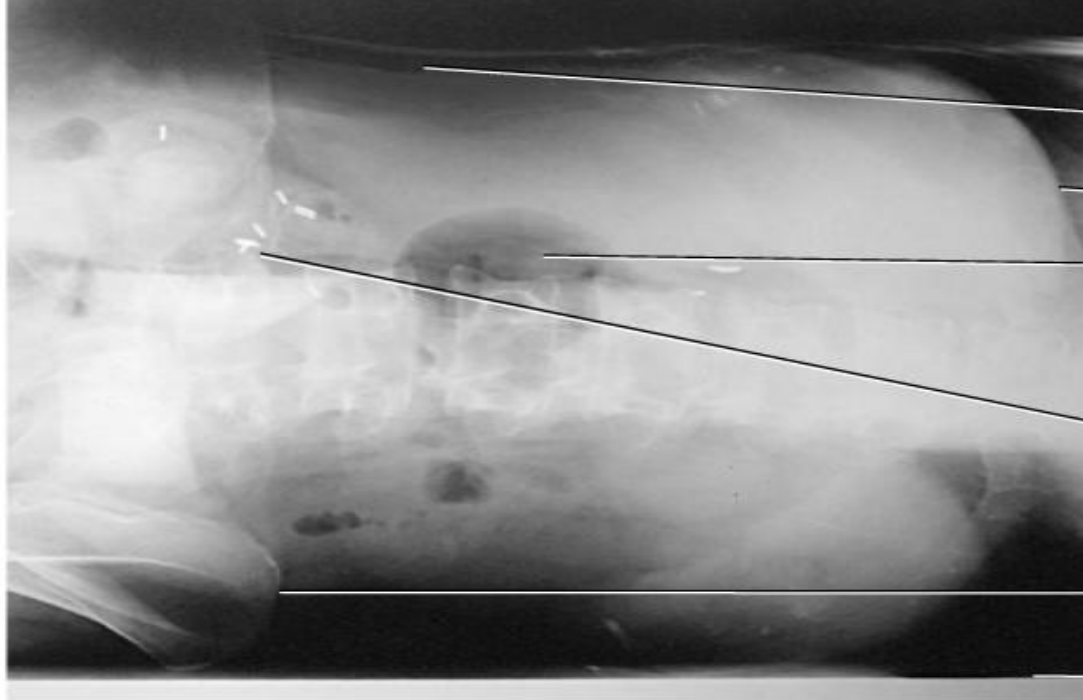
Wedge filter-even density •

Held expiration •

35 x 43cm IR lengthwise with respect to the patient •



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Air-fluid interface

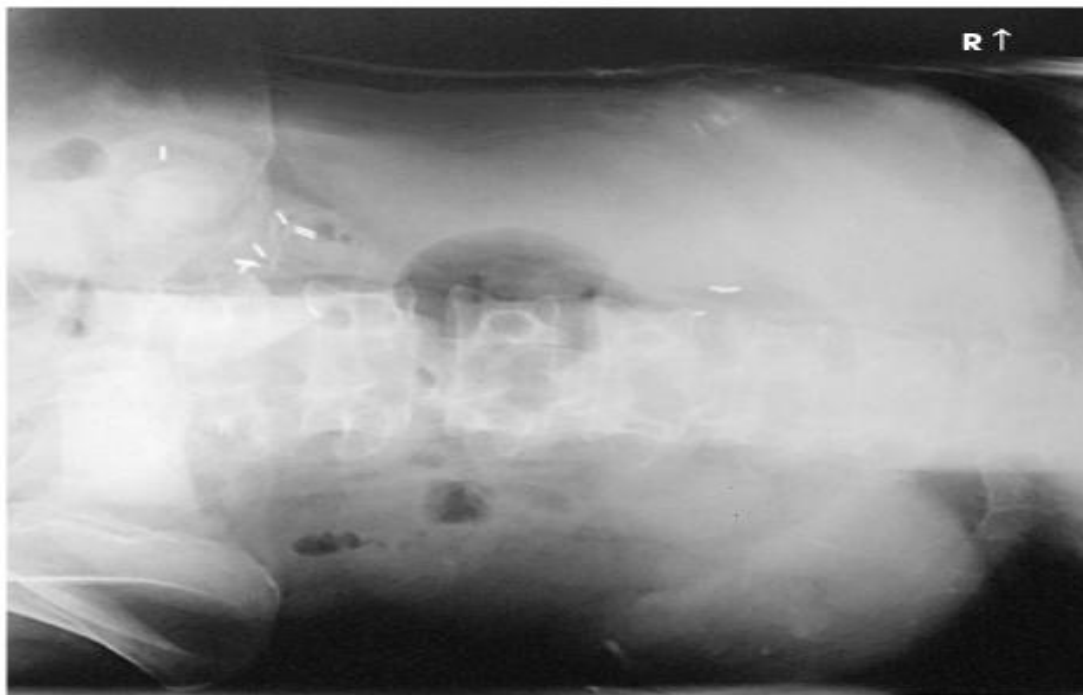
Diaphragm

Intestinal gas

Surgical clips

Crest of illum

Patient support



R ↑

The Abdomen

Film Critique •

No rotation •

Diaphragm on film, symphysis pubis if possible •

Both sides of abdomen on film •

Even density •

Appropriate markers •

The Abdomen

- **Decubitus**
- **Used when patient totally unmoveable**
- **Left or right side against upright bucky or using IR with stationary grid**
- **Elevate arms away from body**

The Abdomen

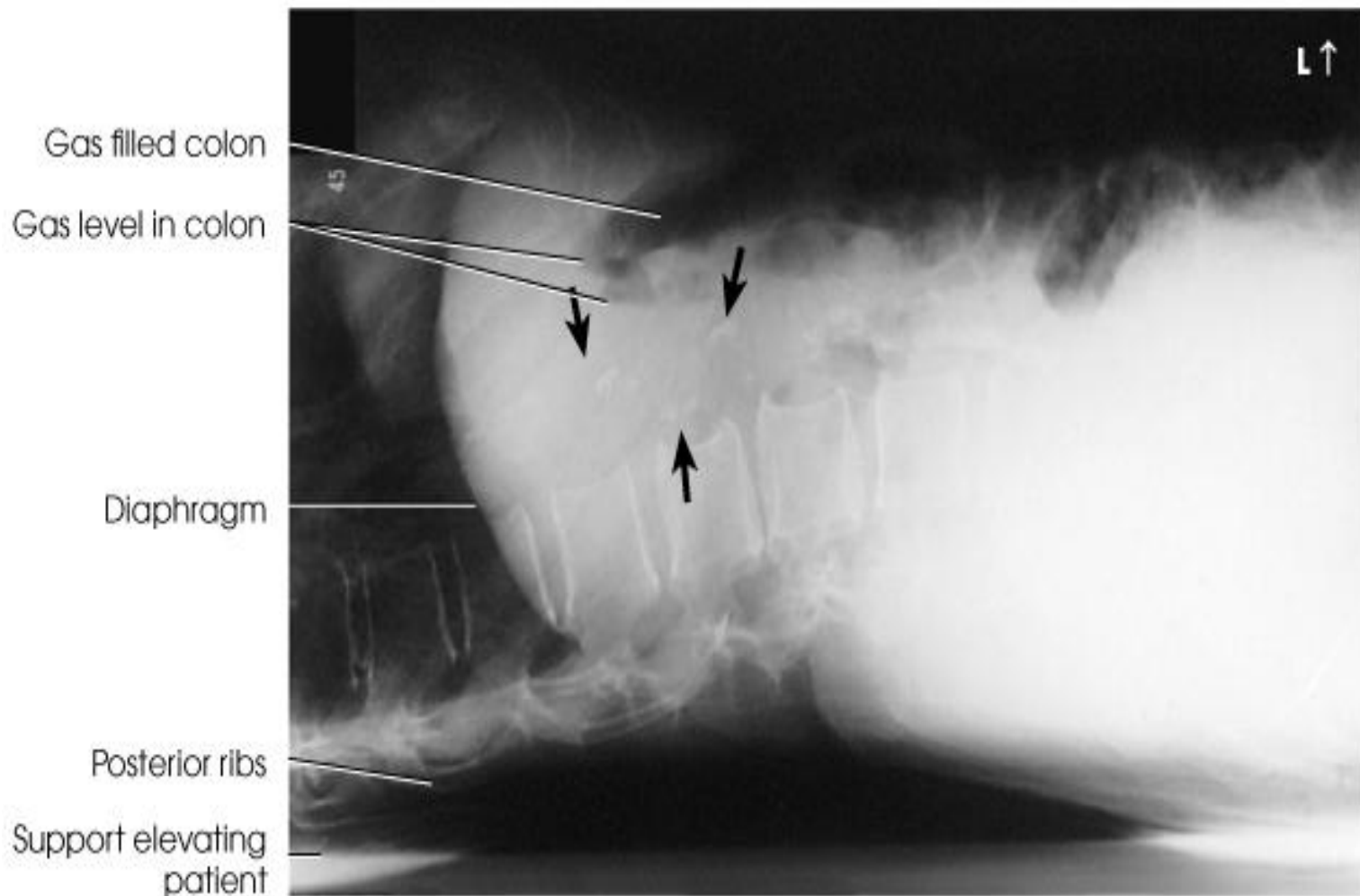
- **Centre long axis of IR to midcoronal plane 5cm above iliac crest**
- **Held expiration**
- **Can show air fluid levels in the abdomen as well as look for aortic aneurysm**



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The Abdomen

- **Film Critique**
- **Diaphragm – no motion**
- **Even density to show region of interest. Filter**
- **Markers**



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The Abdomen

- **Lateral**
- **Looking at prevertebral structures-aorta-aneurysm or foreign body**
- **Patient rotated onto their side**
- **Knees bent forward slightly for support**
- **Arms elevated away from body**

The Abdomen

- **Centre IR at level of iliac crest or 5cm above to show diaphragm in the mid coronal plane**
- **Held expiration**
- **35 x 43cm IR along long axis of body**



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The Abdomen

- **Film Critique**
- **Show abdominal contents with even density-filter**
- **No rotation**
- **Lateral lumbar spine**
- **Same as lateral decubitus**

Prevertebral space

Bowel gas

R



What can you see?



Shampoo Bottle!

