

## Lesson 5: Negative contrast agents of gastrointestinal tract

# Aims

- Learning the following topics about negative contrast agents of gastrointestinal tract:
- Double-contrast imaging of the esophagus
- Double-contrast imaging of the stomach and duodenum
- Double-contrast imaging of the colon

# Double-contrast imaging of the esophagus

# Double-contrast imaging of the esophagus

- For double-contrast study of the esophagus the two contrast agents are used:
- Barium sulfate
- Carbon dioxide crystals (which liberate carbon dioxide)

# Double-contrast imaging of the esophagus

- Barium sulfate:
- High density
- Low-viscosity
- Barium sulfate flows sufficiently to coat the walls of the esophagus



# Double-contrast imaging of the esophagus

- Negative contrast agent:
- A gas-producing substance
- Usually carbon dioxide crystals
- Administration:
- It can be added to the barium sulfate mixture.
- It can be given by mouth immediately before the barium sulfate suspension is ingested.



# Double-contrast imaging of the stomach

# Double-contrast imaging of the stomach

- The principal advantages of the examination of the gastrointestinal tract with the double-contrast method over the single-contrast method are:
- Better detection of small lesions
- The mucosal lining of the stomach can be more clearly visualized.

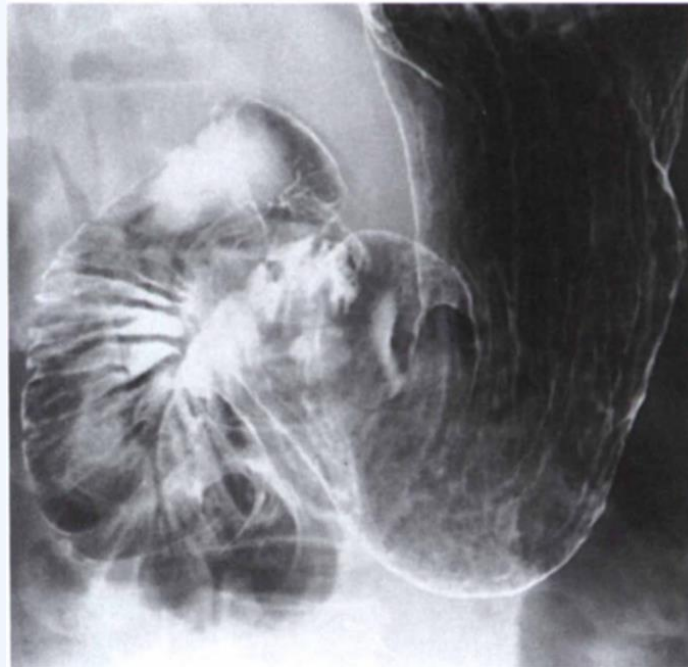


# Double-contrast imaging of the stomach

- Give the patient a gas-producing substance in the form of a powder, crystals or pills.
- Give the patient a small amount of commercially available high-density barium sulfate suspension.
- For proper coating of the stomach walls, the barium sulfate .....
  - must flow freely and have a low viscosity.

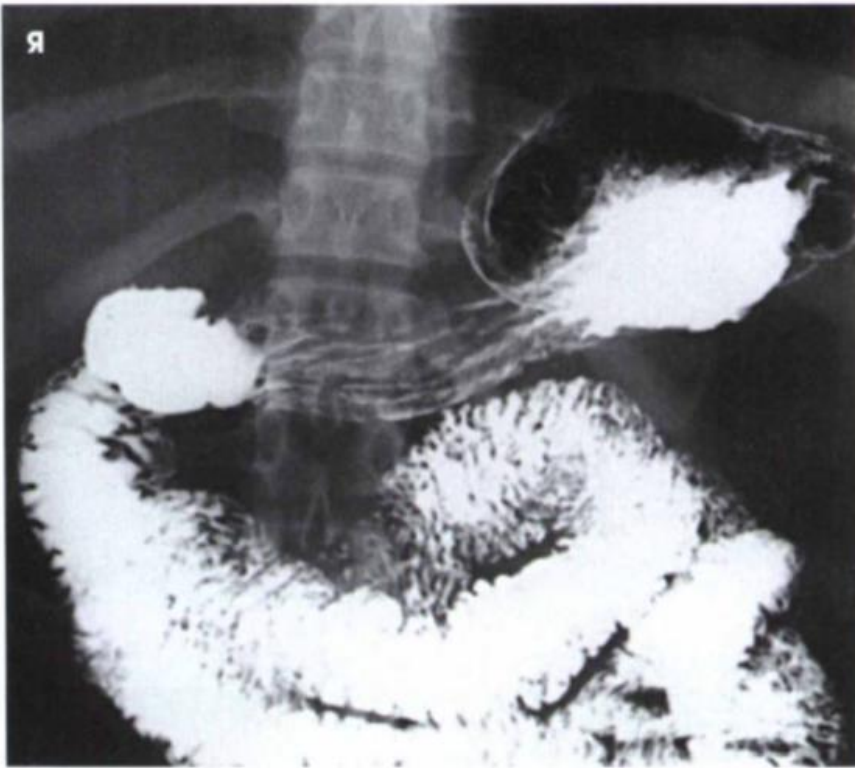
# Double-contrast stomach spot images

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# Double-contrast stomach and duodenum images

# Double-contrast stomach and duodenum



# Double-contrast stomach and duodenum



# Double-contrast enema

# Double-contrast enema

- Air is the gaseous medium usually used in the double-contrast enema study. Therefore the procedure is generally called an air-contrast study.
- Carbon dioxide may also be used.

# Double-contrast enema





# Summary

- Double-contrast imaging of:
- Esophagus
- Stomach and duodenum
- Colon

# Reference

- Philip W Ballinger, Merrill's Atlas of Radiographic Positions and Radiographic Procedures, Mosby