RADIOLOGY: Fluoroscopy and Contrast Studies

Fluoroscopy and plain radiograph contrast studies are less frequently used in modern medicine due of the refinement of endoscopic techniques and the development of more advanced CT and MR imaging techniques. However, contrast studies still have an important role in the imaging of the gastrointestinal tract and as a result they will still come up in OSCE examinations from time to time. It is important to be able to interpret basic radiocontrast studies, and to be able to explain to a patient how and why a radiocontrast investigation is performed (as they are different from the usual 'scans' that they undergo).

Normal radiographs do not show the viscera of the gastrointestinal tract well. Contrast radiography uses a radiocontrast such as barium sulphate to coat the inside of the gastrointestinal tract. Radiographs are then taken of the area of interest, which reveal a white lining to the gastrointestinal tract (this is because x-rays cannot penetrate the radiocontrast). This aids diagnosis by allowing the contour, shape and even movement (in the case of fluoroscopy) of the viscus to be observed.

Radiocontrast agents are usually barium or iodine based and it is important to make sure that the patient does not have an allergy to these agents. They can be used in conjunction with any x-ray imaging modality: plain radiographs, fluoroscopy (continuous X-rays which appear like a video), or computed tomography. In some of these tests patients are required to swallow a radiocontrast liquid, which is usually fruit flavoured so fairly palatable.

There are different types of radiocontrast studies, each one focusing on a different part of the gastrointestinal tract:

A **barium swallow** highlights the pharynx, larynx and oesophagus. In this test the patient is required to swallow the radiocontrast at the same time as the radiographs are taken. It can reveal abnormalities of the oesophagus, and is often requested for patients with dysphagia. It can reveal a pharyngeal pouch, oesophageal web, tumour, achalasia, hiatus hernia, or gastric reflux.

Fluoroscopy involves shooting continuous x-rays at the area of interest, which are put together to form a short video. This is most commonly used to assess a patient's swallow and can be an informative investigation in patients who are thought to be aspirating. It is often the speech and language therapist who will request this test and they will be involved in the fluoroscopy test.

A **barium meal** looks at the stomach and duodenum. It can reveal ulcers, polyps and tumours by showing changes to the outline of the wall of the stomach and bowel. Patients need to remain 'nil by mouth' for about 6 hours before this procedure. A **barium follow-through** is very similar but looks at more distal parts of the small bowel, and the patient is required to wait in the department for a period of time before the radiographs are taken in order to allow the barium to progress through to the small bowel.

A **barium enema** looks at the large bowel. Patients are required to take strong laxatives the day before the procedure. Immediately before the procedure, a small tube is inserted into the anus and barium liquid is passed into the large bowel. Gas may also be inserted which may make the patient feel like they need to 'pass wind'. The aim is to coat the whole large bowel (up to the caecal valve) with barium. Abnormalities such as strictures, polyps, tumours, diverticula, colitis can be seen.