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Case Report

Oesophageal perforation during neo-adjuvant brachytherapy for oesophageal squamous cell carcinoma



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Abstract Neo-adjuvant brachytherapy (NBT) for oesophageal cancer is under rapid development in recent years and more reports are required to elucidate its complications and drawbacks. Here, we report a case treated for NBT whose oesophagus was perforated during the procedure and mention necessary precautions to avoid it.

A 73 year old male whose upper gastrointestinal endoscopy showed a lesion extending from 29 cm to 33 cm of the incisors with a histology of poorly differentiated squamous cell carcinoma, without metastases. Endoscopic ultrasonography diagnosed a T3 N0 grade tumour. He was selected for NBT and neo-adjuvant chemotherapy. The patient received 5 Gy in the first session of NBT, but in the second session before receiving the same dosage his control chest X-ray showed the tip of the catheter to be out of the oesophageal tract.

After confirmation of the perforation by Gastrografin, we performed total oesophagectomy combined with a gastric pull-up procedure.

To our best knowledge, our case is the first reported complication related to the direct effect of the catheter and tissue manipulation rather than the radiation beam.

Weakness in the oesophageal wall due to tumour involvement makes it prone to perforation by any rigid catheter.

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Neo-adjuvant brachytherapy (NBT) for oesophageal cancer is under rapid development in recent years and more reports are required to elucidate its complications and drawbacks. Here, we report a case treated for NBT whose

oesophagus was perforated during the procedure and mention necessary precautions to avoid it.

A 73 year old male presented with dysphagia grade IV to our outpatient clinic. Upper gastrointestinal endoscopy showed a lesion extending from 29 cm to 33 cm of incisors whose pathology turned out to be poorly differentiated squamous cell carcinoma. Thoracic and abdomino-pelvic CT-scans revealed no metastases. Endoscopic ultrasonography diagnosed a T3 N0 grade tumour. After being discussed in weekly

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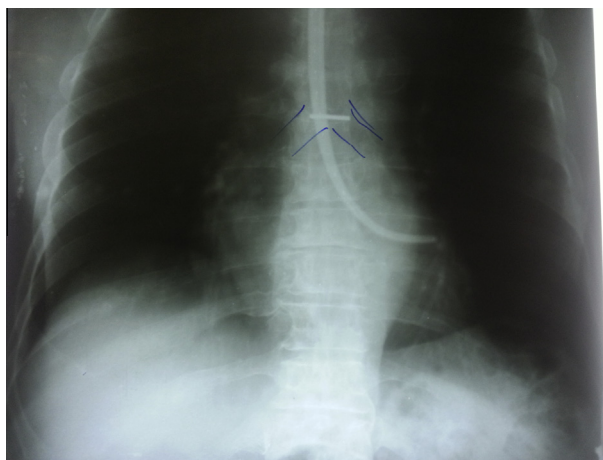


Figure 1 Postero-anterior projection chest X-ray of the patient after introducing the brachytherapy catheter (opaque object). The location of the tracheal bifurcation is highlighted in blue.

sessions by the Multi-Disciplinary Team, he was selected for NBT and neo-adjuvant chemotherapy. The patient received 5 Gy in the first session of NBT, but in the second session before receiving the same dosage his control chest X-ray showed the tip of the catheter to be out of the oesophageal tract (Fig. 1). After confirmation of the perforation by Gastrografin (Bayer, Germany), the patient underwent a right postero-lateral thoracotomy where the perforation was found to be located at the tumour's site (Fig. 2). Considering the favourable general condition of the patient and absence of any thoracic contamination, we performed total oesophagectomy combined with a gastric pull-up procedure. The patient recovered well from the surgery and has finished an uneventful adjuvant chemo-radiotherapy.

Based on recent studies, brachytherapy has been suggested for treatment of some tumours of cervix, prostate, head and neck, liver, and gastrointestinal tract [1]. The main reason for interest in brachytherapy is increasing the effective dose of radiation while limiting the field of radiation in order to reduce radiation-induced complications. Though NBT for oesophageal cancer is under investigation, it is still far from being the standard of treatment [2,3]. The main complications reported with NBT for oesophageal tumours are fistula, stenosis, bleeding, perforation, and mediastinitis which are all late consequences of radiation effects on tissue [3]. To our best knowledge, our case is the first reported complication related



Figure 2 Intra-operative view of the perforation in the oesophageal wall. No contamination was observed and total oesophagectomy was performed.

to the direct effect of the catheter and tissue manipulation rather than the radiation beam. Weakness in the oesophageal wall due to tumour involvement makes it prone to perforation by any rigid catheter. This further emphasizes on the importance of control X-ray after any high risk manipulation or intervention. Our experience showed that early primary resection and repair of such perforations can be successful.

Conflict of interest

None declared.

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