Keywords:
Colonoscopy; Pain in the neck

Introduction
About 1 in 20 people in the UK develop bowel cancer during their lifetime. It remains the third most common cancer in the UK and the second leading cause of cancer deaths. Colonoscopy remains the gold standard investigation in the diagnosis of colon cancer and is routinely performed as part of the NHS bowel cancer screening programme.

However, complications such as perforation, bleeding and post-polypectomy syndrome may vary in occurrence. The incidence of colonic perforation ranges from 0.016% to 0.2% following diagnostic colonoscopy and may be up to 5% following some colonoscopic interventions [1]. Perforations occur more often during therapeutic colonoscopy and in patients of advanced age or with multiple comorbidities.

Colonic perforation presenting with pneumoretroperitoneum, pneumomediastinum and subcutaneous emphysema is extremely rare [2]. We report the case of a patient presenting with abdominal pain and dysphonia associated with diffuse chest, neck and facial surgical emphysema following a routine colonoscopy with hot snarepolypectomy.

Case Presentation
A 57-year-old woman attended the emergency department complaining of left sided abdominal pain and swelling of the neck, face, and chest associated with minor breathing difficulties. According to her partner, her voice sounded different in pitch to normal.

Three hours prior to admission she underwent a colonoscopy for investigation of a change in bowel habit. At colonoscopy the endoscopist noted scattered diverticulosis of the left colon and a 10mm descending colonic sessile polyp which was excised and retrieved with a hot snare.

On examination a low grade pyrexia was noted and her respiratory rate was slightly elevated (RR 18, oxygen saturation 96% on room air). Palpable surgical emphysema with crepitus was noted over her face, neck and upper chest, which was tender. Her abdomen was soft with localised tenderness over the left flank and iliac fossa.

Abnormal laboratory findings included a mildly raised white cell count (11.26 10^9/L) and a minimally elevated C-reactive protein (10 mg/L). The patient underwent chest radiograph and chest and abdominal computed tomography (CT) scan. Right subdiaphragmatic and diffuse subcutaneous emphysema were observed (Figure 1).

The CT scan showed possible pneumoperitoneum, very significant retropneumoperitoneum, pneumomediastinum with and upper thoracic, neck and facial surgical emphysema likely secondary to a bowel perforation in the proximal descending colon. Incidentally a right upper lobe lung lesion suspicious for primary malignancy was also noted with adjacent hilar lymph nodes but no evidence of distant metastases (Figures 2-4).

Initial management involved oxygen therapy, intravenous fluid and antibiotics (Amoxicillin, Gentamycin and Metronidazole).

The next day clinical examination revealed generalised abdominal tenderness with guarding and rebound tenderness. Surgery was decided in view of the spreading abdominal signs and a laparoscopy performed. Interestingly, laparoscopy was surprisingly normal, with...
Perforation may be caused by different mechanisms such as barotrauma, mechanical rupture, thermal injury during electrocautery and polypectomy. In our case, it is presumed that the perforation occurred during polypectomy. Thermal injury of the colonic wall during electrocoagulation for polypectomies is an important additional factor [3].

A second possibility is of an unnoticed perforation of a colonic diverticulum. Excessive pressure following insufflation may cause herniation of the mucosa of a false diverticulum making the mucosa permeable to the air without an evident point of perforation [4]. Alternatively mechanical rupture of a diverticulum is usually the result of excessive pressure against the colonic wall by the endoscope directly.

Perforations most commonly occur at points of previous weakness such as diverticula, previous colonic lesion sites, colitic areas, or neoplastic sites. Advanced age, comorbidities, and skills of the endoscopist further influence the risk of this complication [2].

Retroperitoneal perforations are unusual. Crist et al. [3] reviewed literature from 1974 to 2006, 24 cases of retroperitoneal perforation have been reported. 14 of which were associated with polypectomies and only two were surgically managed.

Due to the rarity of this case, there is no ideal management. However, it is generally accepted that conservative management is perfectly reasonable in patients in good clinical condition in the absence of mechanical obstruction [3]. Success rate of non-operative management is approximately 33-73% [1]. Laparoscopic washout has also been shown to be successful, leading to a good recovery without bowel resection. White et al. [5] showed the short term failures of laparoscopic washout were secondary to perforated cancer, fistula formation and inadequate washout leading to continued sepsis. Long-term problems may also exist with the technique. Resection and radiological drainage remain commonly used practices in the management of bowel perforation [1,3].

With regards to our case, both intra- and extraperitoneal perforation was evident. Retroperitoneal involvement was evident in view of the subcutaneous emphysema. Intrapерitoneal perforation was clinically suspected and confirmed with radiological investigation. No obvious perforation or contamination was noted on laparoscopy. Prompt recognition and management allowed us to minimise the consequences of the perforation and allowed a relatively quick recovery.

**Conclusion**

Perforations involving both the intra- and extraperitoneal space are extremely rare. There are different management options available and the choice should be related to the clinical condition of the patient. Laparoscopic washout and drain insertion is an emerging technique used in non-faeculent peritonitis. Evidence has shown it is a safe procedure, avoiding the need for a laparotomy and stoma formation.

**Consent**

Written informed consent was obtained from the patient for the publication of this report and accompanying images.
Pain in the Neck Following Colonoscopy

Conflict of interest

We are not aware of any conflict of interest or any financial support received.

References


