

Oesophageal perforation at fibreoptic gastroscopy

Perforation is the most serious complication of fibreoptic endoscopy.¹ The commonest site of perforation during upper gastrointestinal endoscopy is the oesophagus,² but predisposing factors have not been fully documented. We report a retrospective survey of major endoscopy units in the United Kingdom and attempt to identify the factors associated with oesophageal perforation.

Methods and results

In a survey of 173 endoscopy units conducted through the British Society for Digestive Endoscopy (which merged with the British Society of Gastroenterology in 1980) 31 of the 101 units who replied reported serious complications (R Cockel, unpublished data). A supplementary questionnaire was sent to these centres requesting further details, and replies were received from 24. The table records the information concerning oesophageal perforation at oesophagogastrroduodenoscopy and related procedures.

Perforation at diagnostic oesophagogastrroduodenoscopy was rare (one in 5474 examinations; seven cases altogether). These seven patients were relatively elderly (mean age 72 years) compared with others undergoing the procedure (mean age 53 years). Barium swallow had been performed in four of the seven patients before endoscopy. In five cases the perforations were high and associated with difficult intubation; in four of these cases intubation was performed by inexperienced operators. The remaining two patients had radiologically identified strictures (one peptic, one carcinoma). No particular type of fibroscope was associated with perforation and no obvious medical factors contributed. Perforation was recognised almost immediately in six patients, but one outpatient died two days later at home. Thoracotomy was performed in two patients, one of whom died.

Perforation during oesophageal dilatation was more common (one in 109 procedures; 11 patients) and occurred despite previous radiological visualisation of the stricture in nine patients. Eight patients had peptic strictures, and perforation occurred at first dilatation in seven and at second dilatation in one. On three occasions perforation occurred during the first stage of a planned two-stage procedure, and defective dilators contributed in one case. Two oesophageal cancers, both misinterpreted as benign strictures, and one invading bronchial carcinoma were perforated. X-ray screening was used in only three of the 11 patients. Four patients died, two after thoracotomy, which was performed in only four patients. Heavy sedation was used in many of the patients with perforation. Perforation occurred at oesophageal dilatation in two additional patients not recorded in the table. One patient died after perforation of the stomach during dilatation of a peptic oesophageal stricture when the metal flexible finger end of the Eder-Puestow dilator became unwound. Another patient died from jejunal perforation after dilatation of a benign oesophagojejunal stricture.

Perforation during palliative oesophageal intubation for carcinoma was common (one in 13 procedures; 18 cases). Barium swallow had been performed in 15 of the 18 patients before the procedure. Except for one bronchial carcinoma, all were lesions of the mid or lower third of the oesophagus. Eight of the strictures were so tight that the guidewire passed only with difficulty. Despite perforation intubation was successful in 16 of the patients. The remaining two died soon after the procedure. Screening was used in 13 of the patients. All were managed conservatively, cardiorespiratory problems contributing to death in five.

Comment

These data indicate that perforation at diagnostic oesophagogastrroduodenoscopy is rare and when it does occur is commonly associated with difficult intubation, inexperienced operators, and elderly patients. Conversely, therapeutic endoscopy is associated with a higher incidence of perforation, palliative intubation being particularly hazardous. Sedation was heavy in many cases when perforation occurred during dilatation. Staging of the procedure did not prevent

complications. The presence of a tight stricture was the major risk factor for perforation at intubation. Nevertheless, morbidity and mortality were considerably lower than in series in which dilatation³ and intubation⁴ were performed using rigid endoscopes. Finally, we emphasise that, contrary to recent alarmist views,⁵ prior radiology does not prevent perforation at endoscopy.

¹ Schiller KFR, Prout BJ. Hazards of endoscopy. In: Schiller KFR, Salmon PR, eds. *Modern topics in gastrointestinal endoscopy*. London: Heinemann, 1976:147-65.

² Colin-Jones DG, Cockel R, Schiller KFR. Current endoscopic practice in the United Kingdom. *Clin Gastroenterol* 1978;**7**:775-86.

³ Raptis S, Milne DM. A review of 100 cases of benign stricture of the oesophagus. *Thorax* 1972;**27**:599-603.

⁴ Amman JF, Collis JL. Palliative intubation of the oesophagus. Analysis of 59 cases. *J Thorac Cardiovasc Surg* 1971;**61**:863-9.

⁵ Mullard KS. Endoscopic assessment of oesophageal disease. *Br Med J* 1981;**282**:589,1320.

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Actinobacillus lignieresii infection after a horse bite

Infected animal-bite wounds are not uncommon. Most reports concern cat and dog bites infected by *Pasteurella multocida*. We present a case of serious facial infection after a horse bite, from which the related but far more unusual small Gram-negative rod *Actinobacillus lignieresii* was isolated.

Case report

A 13-year-old boy was bitten on the face by a horse. He sustained a 10-cm long gash stretching from the tip of the nose to the lateral part of the left cheek. The wound was primarily sutured, and no antibiotics were given. On the next day considerable swelling, which gradually became worse, was noticed around the wound. Two days after the injury he was admitted to hospital because of massive infection in the wound. There was a pronounced rubor and oedema of the surrounding tissues, and the left eye was almost occluded by periocular oedema. The patient's temperature was slightly raised but his general condition was good. Several sutures were removed, and a large amount of bloody, foul-smelling pus was drained from the wound. Initially the patient was given intravenous penicillin but this was subsequently changed to peroral tetracycline because of an allergic reaction. The infection resolved rapidly, and he was discharged after one week. The wound healed well, but the scar required plastic surgery.

Large numbers of polymorphonuclear leucocytes and pleomorphic Gram-negative rods, many of which were coccoid, were seen in a Gram-stained smear of the pus. Initial culture showed a heavy growth of viscous, smooth, greyish-white colonies on human-blood agar incubated overnight in air. There was also a moderate growth of *Escherichia coli* and a few bacteroides colonies after anaerobic incubation. The viscous colonies were oxidase- and catalase-positive and grew on bromothymol blue agar. The isolate was immotile, indole-negative, and urease-positive. Mannitol was fermented, nitrate was reduced, and ornithine decarboxylase activity was absent. The strain was sensitive to penicillin and tetracycline when tested by the disc diffusion method. The organism was initially classified as a variant of *Pasteurella pneumotropica* but was later reclassified as *A. lignieresii*.

Oesophageal perforation during fibreoptic oesophagogastrroduodenoscopy

	No of perforations	No of examinations	Incidence of perforation (%)	No of deaths	Mean age (years) (range)	Heavy sedation*	Radiology before procedure	Other factors
Diagnostic oesophagogastrroduodenoscopy	7	38 315	0.018	3	69 (55-80)	2 (0)	4	Difficult intubation/inexperience
Oesophageal dilatation	11	1 203	0.9	4	72 (58-92)	7 (3)	9	Unsuspected carcinoma
Oesophageal intubation	18	229	7.9	12	70 (58-84)	11 (0)	15	Tight stricture
Other procedure	2			1	34, 45	0	2	Balloon dilatation for achalasia/variceal sclerosis
Total	38	39 747	0.096	20	69	20 (3)	30	

*Large doses of opiates or (in parentheses) a general anaesthetic.