sought. It must therefore disappoint many to discover that the measurement of carbon dioxide concentration for early recognition of spiritoes may be misleading.

However, deeper analysis of the paper by Linko et al, in which greater than 4% carbon dioxide was detected in gas expired from the stomach of two patients, is reassuring. In making a tracheal tube placed in the esophagus to carbon dioxide (0-2-1%5) were found in the insufficient gas during manual ventilation into the esophagus (9 out of 20 patients). The carbon dioxide disappeared after a few ventilations, its presence being due to exhaled gases gaining access to the stomach by mask ventilation before intuba-
tion. The pattern of carbon dioxide recording is quite distinct from that of gases expired from the lungs.

In two additional patients Linko et al simulated inadvertent filling of the stomach by exhaled gas during mask ventilation by blowing air mouth to tube into the esophagus and initially recorded much higher carbon dioxide values, 4.4 and 4.9%. “Here again, the first ventilation resulted in the highest CO2 value; repeated ventilations resulted in rapidly diminishing gastric CO2 indicating gradual dilution. After the 6th ventilation only 1 and 0.3% CO2 were recorded.” This distinction from tracheal intubation was not a problem. On the other hand, distension of the stomach resulted in a definite backflow of gases and an almost normal filling of the breathing bag.”

We agree that any method of detecting in-
adventitious esophageal intubation was foolproof would likely lead to complacency, and Dr Kerr was correct in pointing out the hazards of over-
reliance on end tidal carbon dioxide concentrations in expired gas. However, capnography remains a considerable advance over existing subjective methods, and I would echo the recommendation of Birmingham et al that the technique should be used routinely.

On a practical level steps could be taken to prevent exhaled carbon dioxide from entering the stomach during ventilation of the lungs with a face mask. Examples include the use of a non-
rebreathing valve, absorption of carbon dioxide by soda lime in a breathing circuit, or high gas flows in a Mapleson A attachment.

**Gastrointestinal endoscopy in the young**

**Sir,—**Given that the arguments about open access endoscopy services are still being debated and that the incidence of serious upper gastrointestinal disease is inversely related to age, many dyspeptic young patients will continue to be referred to gastroenterology units for an endoscopic diagnosis.

Other authors have suggested that upper gastro-
intestinal endoscopy in young patients is not worth while in terms of subsequent change in management.1 Dr L N Forbat and colleagues (8 August, p 365) argue otherwise, but, having studied a similar group of 52 patients (38 men, mean age 22-8 years), we suggest that they underestimate the case in favour of performing endoscopy in young patients.

Dr Forbat and colleagues state that only two out of 36 patients with normal findings at endoscopy and only 38 of 64 patients with abnormal findings had a subsequent change in management. Of our results, similar, with none of 10 patients with normal findings and 31 of 42 patients with abnormal findings subjected to a change of management as defined by their criteria.

When we reviewed our 21 “failures” we found that useful information was obtained in most. Of the 10 patients with normal findings on endoscopy, four had previously reported abnormalities refuted, two were later identified as having psychiatric disorders, one was dyspeptic while taking a non-
steroidal anti-inflammatory drug, and in only three could the endoscopy be regarded as unhelpful.

Of the 11 patients with abnormal findings but no change in management, three had evidence of Mallory-Weiss tear, three had gastritis related to tobacco use, and three had evidence of upper gastrointestinal bleeding in the absence of a definite source. One was already taking ranitidine, and four had an in-
nflamed sliding hiatus hernia, not thought to be the cause of their dyspepsia.

Thus we conclude that endoscopy in the young is a highly productive procedure — quite apart from the economic viewpoint, since young dyspeptic patients may have a lifetime of referrals ahead of them.

**Peter J Mullen \*

Anne Slater

**Medical Gastroenterology, Department of Anaesthesia,**

Royal Air Force Hospital, Wargrave, RG9 6PO

**Department of Anaesthesia,**

Queen Alexandra Hospital, Portsmouth


**Emergency phlebography service**

**Sir,—**A painful swollen calf has several causes. We were therefore surprised that Drs M J Charing and E W L Fletcher thought it reasonable to dismiss patients with a normal phlebogram without a definite diagnosis. Complications of popliteal cysts (“pseudotumphlebitis”)2 cause a painful swollen calf and as though thrombosis in non-surgical patients presenting to district hospitals.1 Up to half of all ruptured Baker’s cysts occur in non-articular knees.1 Up to a third of patients with deep vein thrombosis have popliteal cysts contributing to their symptoms.2

Clinical evaluation is notoriously unreliable in providing a correct diagnosis of the painful swollen calf.1 Therefore further investigation is required to treat the patient appropriately. Emergency phlebography or ultrasonography may be required for the patient’s special case, whereas phlebography to show a ruptured calf is performed easily and safely by the resident medical staff and radiographer.

**North Tees General Hospital,**

Stockton on Tees

**N E S Fry**


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