Diarrhoea induced by migration of a pacemaker generator

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SUMMARY A case of intraperitoneal migration of a pacemaker generator is described. Chronic diarrhoea and abdominal discomfort were relieved by its removal.

Improved design of permanent pacing systems and better surgical techniques for their implantation have led to a progressive reduction in the complication rate of the procedure. Nevertheless, the mean figure for surgical complications remains in the region of 5 per cent (Siddons and Nowak, 1975) and the present case emphasises a problem which may particularly affect management of the thin patient undergoing chronic cardiac pacing.

Case report

In July 1971, a thin 74-year-old woman (weight 45 kg) presented with a 2-year history of dizziness and syncopal episodes, most of her attacks being precipitated by swallowing. The electrocardiogram showed complete heart block with a ventricular rate of 42 beats per minute. Via a small anterior thoracotomy a myocardial lead (Devices) was sutured to the left ventricle and attached to a demand generator (Devices 3821) which was placed posterior to the muscle in the left rectus sheath. In March 1974 the generator was electively replaced (Devices 3821 RC), the same site being used, and at routine follow-up examination during 1975 was noted to be satisfactorily positioned at the implant site. Because of generator battery depletion the patient was admitted in June 1976 and at this time complained of intermittent lower abdominal discomfort and persistent diarrhoea during the preceding 4 months. Rectal examination and sigmoidoscopy were normal, but it was discovered that the box had eroded into the peritoneum and was lying free in the left side of the pelvis (Fig.). At operation the generator was retrieved by traction on the lead which was then cut short. The posterior rectus sheath was noted to be thin and atrophic. A retrosternal approach to the heart was made and a small pericardial effusion was present. A Medtronic sutureless epicardial lead (Model 6917/35) was

inserted into the posterior aspect of the ventricle and attached to a Medtronic Xytron generator (Model 5951) which was buried subcutaneously beneath a Kochers incision. At follow-up 7 months later the generator remained at its implant site and cardiac pacing was normal. There had been no recurrence of diarrhoea or abdominal pain.

Fig. Abdominal x-ray showing pacing generator lying in the left side of the pelvis. In the left upper quadrant the transverse radio-opaque line is a surgical marker.

Discussion

Implantable cardiac pacemakers may prolong and improve the quality of life, and represent the only effective treatment for patients with symptomatic complete heart block. Three implantation techniques are generally accepted: (1) epicardial electrodes sutured at thoracotomy; (2) sutureless epicardial electrodes (Hunter *et al.*, 1973); and (3) transvenous electrodes (Lagergren and Johansson, 1963). Comparative studies of the relative merits and complications of the methods have been made (Goldstein *et al.*, 1970; Brenner *et al.*, 1974; Buffle, 1976), discussion concentrating on the factors associated with reliability of the lead system.

The principal complications affecting the generator site are inflammation, wound infection, and skin necrosis. It is not generally appreciated that a higher proportion of surgical complications may occur when the abdominal wall site is used (Siddons and Nowak, 1975), though in thin patients where there may be little tissue overlying the pectoral muscles the abdominal site has been advocated as preferable to the chest wall (Buffle, 1976). Despite the fact that the generator is commonly placed in the rectus sheath posterior to the muscle, erosion through the skin is the usual complication and we could discover only one other report of remote retroperitoneal migration (Bello *et al.*, 1974). This patient, a 75-year-old man, presented with severe pain in the left lumbar region after a coughing bout. The generator, implanted 8 months previously, was found at surgical exploration in the left dorsolumbar region with a large retroperitoneal haematoma. Normal pacing had not been interrupted. In our patient the migration was discovered when she attended for generator change, the symptoms being lower abdominal pain and persistent diarrhoea which abated as soon as the abnormally sited generator was removed. The absence of other causes for painful diarrhoea and the clear temporal relation between removal of the generator and relief of symptoms suggest that the intraperitoneal position of the generator may have been responsible.

Electrical stimulation of the bowel analogous to that of pectoralis major by axillary units is theoretically possible, though mechanical irritation offers a more simple explanation.

The complication reported here is rare but the risk of its occurrence would clearly be increased if the peritoneum and posterior rectus sheath were thin and fragile structures. Though not invariable, this situation may be present in thin patients, particularly in the older age groups, who are also more likely to require abdominal units. We conclude that whichever site for generator placement is chosen such patients represent a special surgical problem which is only likely to be ameliorated by the development of progressively smaller generators in which prominent corners and lead attachments have as far as possible been eliminated.

References

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