A METHOD OF ANCHORING RADIUM NEEDLES IN THE PHARYNX

BY

J. E. G. MCGIBBON, M.B., B.S.

AURIST AND LARYNGOLOGIST, LIVERPOOL EYE AND EAR INFIRMARY

The difficulty of fixation of radium needles when used for interstitial radiation of pharyngeal neoplasms is generally recognized. Not only is accurate insertion of the needles difficult, but also, as the regions are kept incessantly in motion by involuntary swallowing movements, the needles are liable to be expressed from the tissues. Furthermore, displacement is favoured, as the mere presence of a neoplasm in this locality creates a necessity and desire on the part of the patient to rid his throat of increased secretions by hawking and coughing.

The techniques described for fixation of needles include the following: (1) the needles are inserted in pairs from behind forwards and in the opposite direction, and tied in position¹; (2) after insertion of the needles the threads are collected into a rubber tube, which is brought through the mouth, and the threads are then fastened to the skin of the cheek by strapping^{2,3}; (3) firm suturing of the needles *in situ*.^{1,3,4} All of the above procedures possess certain disadvantages. Tying the needles together in pairs when in use in the tonsil is an insecure method of fixation; a pair of needles could easily become displaced. The use of a rubber tube in the mouth for at least a week must be very irksome to a patient, and will interfere with deglutition. Traction on such a tube by movements of the tongue could readily dislodge one or more needles. Suture of the needles *in situ* necessitates three wounds per needle: the needle insertion wound, and the wounds of entrance and exit of the suture. In a patient already poorly nourished and suffering from pain and dysphagia such extensive trauma in a septic area presents obvious disadvantages. Moreover, in spite of careful suturing, the needles may become displaced. Birkett states that it is almost a routine procedure at Manchester to give a second anaesthetic and reinsert the needles.

DESCRIPTION OF TECHNIQUE

The method described below has been used by me for lesions affecting the tonsil alone (Fig. 2); the soft palate alone (Fig. 3); the tonsil and palate; the tonsil and side of tongue; the tonsil, palate, and side of tongue; and the posterior pharyngeal wall (Fig. 4). It requires good illumination and efficient access. These have been obtained by the use of reflected light from a forehead mirror, and of the Boyle-Davis gag. The needles are inserted in the usual manner through healthy tissue around the lesion, and the threads are left nine to ten inches in length. After insertion of a needle its thread is secured outside the mouth, without any tension, by

pressure forceps. When the requisite number of needles have been introduced a soft rubber urethral catheter (about size No. 8), lubricated with liquid paraffin, is passed along the floor of one nasal fossa into the nasopharynx. As soon as the tip of the catheter is seen below the soft palate it is caught by a pair of Luc's forceps and brought outside the mouth. Half the total number of radium needle threads are then released from the pressure forceps and tied securely to the end of the catheter. Fig. 1 shows the threads tied to the catheter; three threads only have been drawn in the diagram, for purposes of clear illustration. The catheter is now carefully withdrawn from the nose, and immediately the attached threads appear at the nasal orifice they are freed from the catheter. Each thread is gently drawn taut, and, during traction, observation must be kept on the site of insertion of the attached needle in order to prevent accidental withdrawal. These threads are then tied together with a piece of silk or catgut. The lubricated

catheter is now passed through the other nasal fossa, and the remaining free threads dealt with in a similar manner. Finally, the two bundles of threads are tied securely together across the columella and the redundant ends cut off (Fig. 2). The patient must be watched constantly until complete recovery from the anaesthetic, in case he should pull on the knot and so displace the entire number of needles.

The presence of the threads in the nose does not interfere with nasal respiration, and appears to cause little discomfort. The threads in the pharynx lie against the posterior and lateral pharyngeal walls, and do not interfere with speech or swallowing. The patients have been

able to take ordinary soft food until the fifth day after insertion of the needles, and they have been kept tolerably comfortable during that period by the frequent use of mouth-washes. Owing to reactionary swelling and inflammation of the parts, the patients have been able to swallow only fluids from about the fifth day, until removal of the needles on the eighth or ninth day. Soft food can then be taken again, and ordinary diet gradually resumed in a week to ten days. As a rule, two or three needles have worked out, but as these remain suspended at a visible level in the oropharynx and adhere by moisture to the posterior pharyngeal wall, they can be easily reinserted or removed.

Needles 21.7 mm. in length (active length 10 mm.), 1.65 mm. external diameter, containing 1 mg. radium screened by 0.5 mm. platinum, have been found most convenient for use in the regions discussed above. These needles have been kindly lent by the Liverpool Radium Institute.

REFERENCES

- ¹ Cade, Stanford: *Radium Treatment of Cancer*, 1929.
- ² Souttar, H. S.: *Radium and its Surgical Application*, 1929.
- ³ Fitzwilliams, Duncan C. L.: *Radium and Cancer*, 1930.
- ⁴ Birkett, G. E.: *Radium Therapy: Principles and Practice*, 1931.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.