

ORIGINAL

INTRODUCTION

SQUAMOUS cell carcinoma of the hypopharynx is one of the more common malignant tumours of the head and neck. Within the anatomical region which extends from the superior margin of the epiglottis, above, to the level of the inferior margin of the cricoid cartilage, about 50% of tumours arise in the piriform fossa, 30% in the post-cricoid area and the remainder on the posterior wall or laterally above the piriform fossa. An important aetiological factor is a high intake of spirits whereas association with iron deficiency anaemia, the Patterson-Brown-Kelly syndrome, is now relatively uncommon in developed communities.

About 75% of the patients with piriform fossa tumours have enlarged cervical lymph nodes on initial presentation and even in those without nodes the tumour is usually quite large when the diagnosis is made. The early symptoms of these tumours are slight: A feeling of a need to clear the throat or mild discomfort on swallowing, particularly of hot food or drink. Moderate or severe pain rarely occurs early and referred pain in the ear indicates involvement of the superior laryngeal nerve. Because of the local anatomical configuration considerable tumour bulk must be present, or tissue destruction have taken place, before the voice, swallowing or breathing are much affected.

Reconstruction Following Laryngopharyngectomy

R.P.E. Barton*

It is of paramount importance that the diagnosis is made from the endoscopic appearances and biopsy and not from a biopsy of the neck nodes. It is worth stressing that no patient in the cancer age range should have a solid neck mass biopsied without, at the very least, mirror examination of the pharynx and larynx and probably pharyngolaryngoscopy under anaesthesia. Spread of tumour within the tissues of the neck from an injudicious biopsy gravely affects the prognosis.

Radiotherapy may sometimes cure small tumours of the hypopharynx — 11% of mostly T tumours in one British series (Lederman, 1967) — but in the larger tumours, as they more often present, and certainly where the neck nodes are involved it is a vain hope to expect a cure from radiotherapy alone. Pre-operative radiotherapy does not improve the survival rate but cer-

tainly increases the rate of complications post-operatively. Radiotherapy is of more use post-operatively where the margins of excision of a large tumour may be in doubt, or for recurrent tumour not suitable for resection. Anti-cancer chemotherapy is proving useful in treatment programmes but, like radiotherapy, is not employed alone and will not be discussed further in this paper. Thus for the great majority of patients with these tumours the treatment offering the best hope of cure is surgery.

The very site of these tumours means that in order to obtain adequate clearance it is necessary to remove the larynx. In a few patients with relatively small piriform fossa tumours it may be possible to conserve sufficient mucosa from the opposite piriform fossa thus allowing primary closure of the pharynx. However, in the majority of piriform fossa tumours and in all post-cricoid lesions it is necessary to do a total pharyngolaryngectomy. If the lymph nodes are involved a radical neck dissection in continuity is performed. Post-cricoid carcinoma frequently involves the thyroid gland so this is total excised though in piriform fossa tumours the lobe opposite to the growth can be preserved.

Four cases are reported to illustrate different methods of pharyngeal reconstruction after total pharyngolaryngectomy.

* E.N.T. Department,
Leicester Royal Infirmary,
Leicester, U.K.

CASE 1

Miss R.W. aged 54, presented with painful swallowing. A barium swallow showed a post-cricoid filling defect and this was confirmed as a squamous cell carcinoma at endoscopy. A total pharyngolaryngectomy was carried out and a free colon graft taken. The upper left colic artery was anastomosed to the external carotid artery and the vein to the common facial vein. The post-operative course was complicated by a retro-"pharyngeal" abscess which was drained twice. However, Miss R.W. still remains in good health, swallows normally and has an adequate "pharyngeal voice."

CASE 2

Mrs. D.D. was admitted for investigation of peripheral vascular disease and also complained of sore throats, pain referred to the left ear and hoarseness. At endoscopy an extensive carcinoma arising in the left piriform fossa was found and this was treated with a full course of radiotherapy in view of her severe peripheral vascular disease. Nine months later the tumour recurred and total pharyngolaryngectomy was performed. However, reconstruction was limited to insertion of a Stewart's tube between the orostome and oesophagus as "short term" expedient. Two years later the anterior skin of the neck was excised for recurrent non-malignant ulceration, the lateral flanges of the tube trimmed and the neck re-surfaced with a nape flap. Mrs. D. has remained well since, with complete remission of her symptoms of vascular insufficiency!

CASE 3

Mr. L.L., 60 years old and a heavy drinking Chinaman from Mauritius presented with a circumferential post-cricoid carcinoma.

This was treated by total pharyngolaryngo-oesophagectomy and mobilization of the stomach as a pedicled graft, despite a previous selective vagotomy and gastroenterostomy, via the posterior mediastinum and anastomosed to the orostome. A small fistula developed post-operatively which healed spontaneously. Swallowing was established at 2 weeks and he was discharged home at 5 weeks having gained 4 lbs while an in-patient. He has remained well but has not obtained good speech.

CASE 4

Mrs. E.S., aged 64 complained of pain in the left ear and throat. A foreign body was removed from the ear but further following up showed an extensive squamous cell carcinoma of the left lateral pharyngeal wall extending from the base of the tonsil, above, to the level of the crico-pharyngeus below. 1 G of methotrexate intravenously with folinic acid rescue was given and 2 weeks later pharyngo-laryngectomy performed. In view of the high upper limit of the resection to the level of the Eustachian orifice and poor vascular anastomoses around the stomach, a pedicled colon graft was brought up through the anterior mediastinum got for repair. Oral fluids were commenced after 10 days though the build up to a full diet was somewhat slow perhaps due to a degree of ischaemic colitis. However, Mrs. S. is now at home eating a normal diet and producing reasonable voice.

DISCUSSION

The use of a plastic tube to bridge the gap between oropharynx and cervical oesophagus is not normally successful for very long, despite the evidence of Mrs. D.D. (Case 2). Infection in the neck, extrusion of

the tube through either the mouth or the neck and erosion of major vessels may occur and their use is restricted to patients in whom general health or other factors preclude more sophisticated reconstruction. A split thickness skin graft may be wrapped around a tube with the latter being removed per-orally 4 — 6 weeks later. This eliminates the problems of an in-dwelling tube but the skin graft, as when used elsewhere in the body, tends to contract and thus repeated dilatation of the new pharynx is necessary.

Miss R.W. (Case 1) has done well since repair with a free colon graft. Unfortunately, there have been no other long term survivors in our practice using this method of repair. Problems occurred with the presence of both vascular and bowel anastomoses in close proximity in the neck with the former anastomosis being jeopardized if the latter one leaked at all. However, it would be profitable to take a further look at this method of reconstruction in view of the recent advances in vascular surgery and with the possibility of temporarily isolating the vascular and intestinal anastomoses.

For the present there are 2 main, and quite distinct, methods of total pharyngeal reconstruction. Two cases (3 and 4) of reconstruction with pedicled viscus graft have been presented. The alternative method is repair with skin flaps. It is not technically difficult to make a new pharynx with the use of one or both medially based delto-pectoral flaps, but there is one strong and valid argument against this technique. It takes time. If all goes well repair may be obtained in 6 — 8 weeks after 3, or sometimes 4, separate operations. Where complications such as local infection, chest infection or flap necrosis occur then final reconstruction

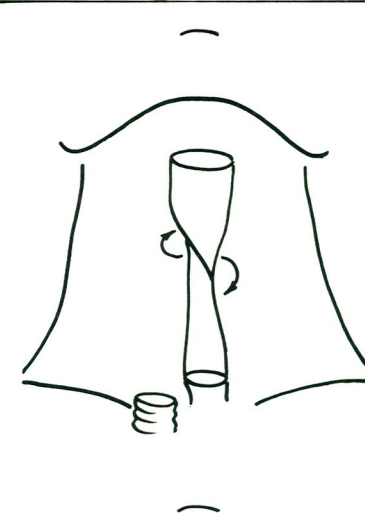
may not be obtained within 6 months. The prognosis for hypopharyngeal carcinoma is poor with only 50% surviving 2 years (Shah 1976) so that time is the one thing these patients cannot spare and probably the most depressing moment in Head and Neck surgery is to see a patient develop the first sign of recurrent tumour just as their pharynx is mended.

Pharyngolaryngectomy with pedicled viscus repair is a one stage operation and patients can normally expect to commence swallowing within 10 — 14 days and be ready to leave hospital within 3-4 weeks. Some of the early results with this technique were not good (Stell and Maran, 1972) but with the realization that surgery must precede radiotherapy, increased co-operation between E.N.T. and general surgeons and better anaesthetic and intensive therapy facilities the results have steadily improved. Although the general surgeon will decide whether to use stomach, rather than colon, appears in the neck. The reason is that if breakdown and fistula formation occurs when stomach is used, spontaneous healing will normally take place. However, if the blood supply of a pedicled colon graft is compromised then the whole graft is liable to slough with, most likely, a fatal result.

Finally, there is a small group of patients with piriform fossa tumours in which a minimal amount of pharyngeal mucosa from the opposite side may be confirmed. Ranger (1979) has stated that if this remnant has a minimum width of 7 — 8 mm it may be sutured around a small nasogastric tube and then, when healing has taken place, swallowing will in itself dilate this to enable a normal diet to be taken in due course. I myself (Barton, 1982) have described a method in which an



Narrow pharyngeal remnant.

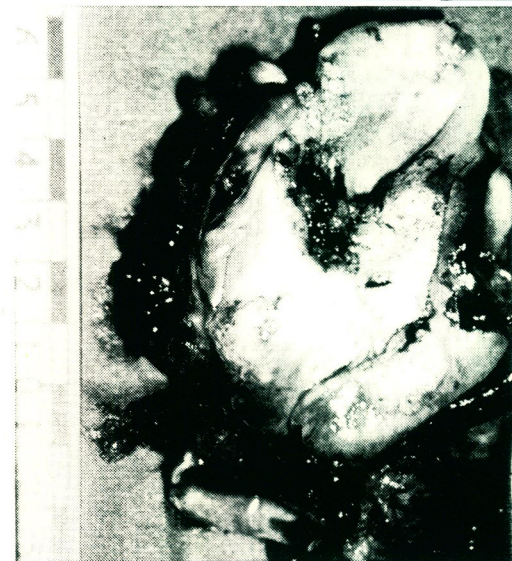


Oblique division of pharyngeal remnant and direction of mobilization.

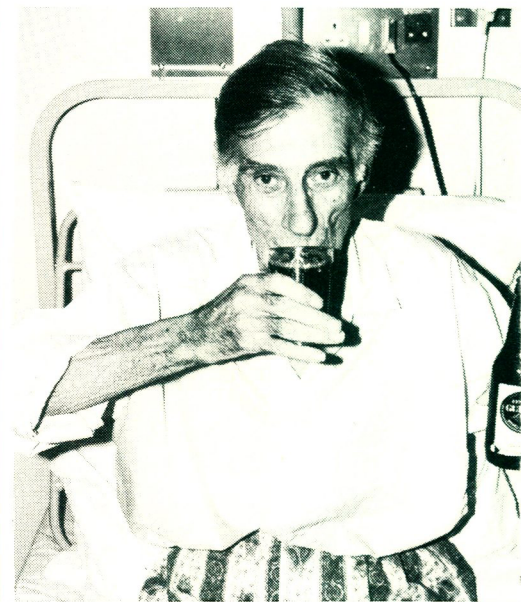
even smaller pharyngeal remnant with a width of as little as 3 — 4 mm may be used for primary repair thus avoiding the problems of viscus or skin flap repair. This method is illustrated in Figures 1, 2 and 3. The narrow pharyngeal remnant is divided obliquely and two "V" flaps of pharyngeal mucosa created. The upper flap is advanced inferiorly and the lower flap advanced superiorly thus creating sufficient width of mucosa to suture around a nasogastric tube. A typical tumour for which this procedure is useful is illustrated in Figure 4 and Figure 5 shows a patient 12 days after such surgery enjoying a glass of Guinness.



Suturing of posterior pharyngeal wall prior to closure around nasogastric tube.



Extensive piriform fossa carcinoma.



Patient swallowing 12 days post-operatively.

REFERENCES

Barton R.P.E. (1982) Journal of Laryngology & Otology, 96, (In Press).

Lederman M. p.347, Proceedings, International Workshop on Cancer of the Head and Neck (Ed. Conley, J.) London, Butterworths (1967).

Ranger D. (1979) In Scott Brown, Diseases of The Ear, Nose & Throat, Vol. 4, p.202., Butterworths, London.

Shah J.P., et al., American Journal of Surgery (1976), 132, 439 — 443.

Stell P.M., and Maran A.G.D., p.226, Head and Neck Surgery, Heinmann, London (1972). □□



H.E. Tariq Almoayed, the Minister of Information and Dr. Jaffer Al-Bareeq, President of the Bahrain Medical Society seen at the Presentation of Research Awards held on 10th December, 1981.