British Journal of Plastic Surgery (1987) **40**, 99–101

Congenital external fistulae of the parotid duct

P. M. GILBERT

Plastic Surgery and Burns Unit, Queen Mary's Hospital, London

Summary—Two cases of congenital external parotid duct fistulae are described. Relevant embryology and aetiology are discussed.

Case reports

Case 1

A 4-month-old healthy male was referred to the outpatient clinic complaining of a constant salivary dribble from a small pit in the left cheek. Facial skin below the pit was macerated and sore as a result of this salivary leak.

On examination, there was a pit in the cheek, approximately 2 cm posterior to the left angle of the mouth, from which saliva trickled (Fig. 1). Palpation over the parotid gland increased salivary flow from the pit.

A sialogram was performed. This showed a parotid duct with no evidence of an intra-oral opening but normal branching of ducts in the gland.

It was decided that the duct and its opening should be transposed intra-orally. At operation a normal right parotid papilla was readily identified but no similar papilla could be found inside the left cheek. The abnormal duct was cannulated and injected with methylene blue to help its identification—there was no flow of dye into the oral cavity, which further confirmed the absence of an intra-oral opening.

The duct, along with a small cuff of skin, was dissected for approximately 3 cm, and then transposed intra-orally. Recovery was uneventful.

Once swelling had subsided the new intra-oral opening of the duct was visible and saliva could be expressed from it. When last seen 9 months post-operatively there had been no problems whatsoever.

Case 2

A boy of 5 months was referred to hospital with a depression lateral to the left angle of the mouth. A clear discharge escaped from this during feeds, especially when he was taking fruit juice.

A sinogram showed a track passing posteriorly and a 1 cm^2 collection of contrast in the preauricular region with the appearance of a portion of the superficial part of the parotid gland. Saliva was seen coming from the normal site of the opening of the left parotid duct but an attempt to cannulate the duct was unsuccessful.

At operation the orifice of the aberrant accessory duct was mobilised with a small vertical ellipse of surrounding skin. The terminal 2 cm of the duct were freed and a tunnel made through the cheek and the orifice was implanted into the buccal mucosa about 1 cm below the papilla of the normal parotid duct.

The child made an uneventful recovery. There was no post-operative swelling or recurrence of the fistula. The opening of the accessory duct was visible inside the cheek. Nine months after the operation he was still trouble-free and was discharged from follow-up.

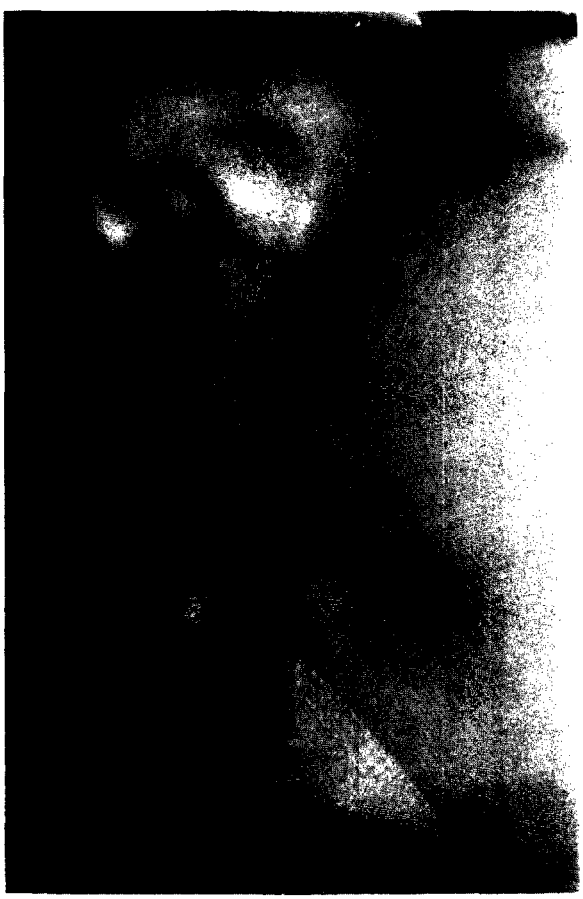

Fig. 1

Figure 1—*Case 1.* View of left cheek to show abnormal parotid opening.

Discussion

(a) *Normal embryology*

The parotid gland normally arises at about the seventh week *in utero* as a solid outgrowth of cells from the wall of the developing oral cavity. These cells grow into the underlying mesenchyme. Epithelial buds branch repeatedly to form solid ducts, the ends of which form acini. Later the ducts and acini become canalised.

(b) *Review of the literature*

Congenital parotid fistulae are referred to by Mason and Chisolm (1975) who quote from Thoma, *Oral Pathology* (1970). In that book Rauch and Golin (1970) state that "fistula formation of the major salivary glands rarely results from malformation of the salivary duct system alone". Their quoted references, however, do not refer to isolated parotid duct fistulae but to branchial cleft fistulae and pre-auricular fistulae which occasionally may traverse the parotid gland.

Gorlin, Pindborg and Cohen (1976) describe congenital lip fistulae which communicate with the underlying minor salivary glands. They suggest that an embryological sulcus, which normally disappears at 7 weeks *in utero*, persists after fusion of facial processes around it at about that time.

(c) *Proposed aetiology*

Figure 3 shows an early mouse embryo at a stage before full fusion of the mandibular and maxillary processes. In humans this occurs at approximately 7 weeks, which is also the time at which the parotid gland develops.

It would seem probable that in these cases the primitive parotid bud develops from the edge of the maxillary process in such a way that subsequent fusion of the processes leaves the parotid opening external rather than internal.

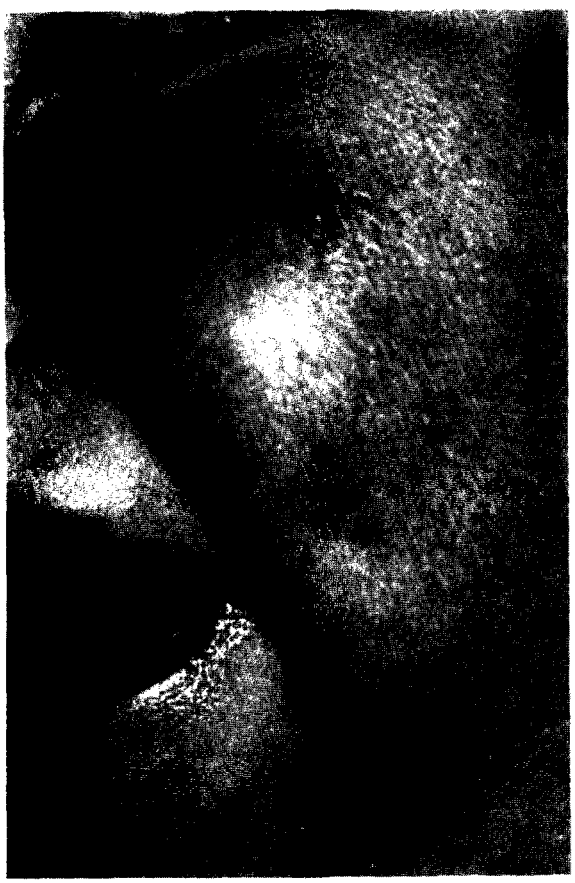

Fig. 2

Figure 2—*Case 2*. View of left cheek to show abnormal parotid opening.

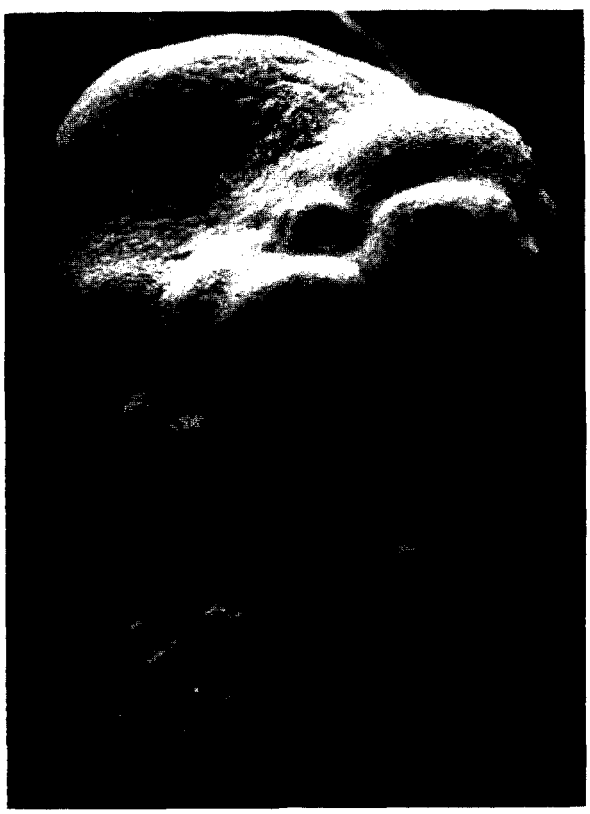

Fig. 3

Figure 3—Early mouse embryo before full fusion of maxillary and mandibular processes.

This would also explain why the fistulae described were both in the line of fusion of the mandibular and maxillary processes.

Acknowledgements

I would like to thank Mr Bryan Mayou, FRCS, and Mr Antony Watson, FRCS(Ed), for allowing me to report their cases, and Professor M. F. Kaufman of the Department of Anatomy, University of Edinburgh, for providing the photograph of the mouse embryo.

References

Gorlin, R. J., Pindborg, J. J. and Cohen, M. M. Jr (1976). *Syndromes of the Head and Neck*. 2nd Edition. New York: McGraw-Hill.

Mason, D. K. and Chisolm, D. M. (1975). *Salivary Glands in Health and Disease*. St. Louis: C. V. Mosby Co.

Rauch, S. and Gorlin, R. J. (1970). In Thoma *Oral Pathology*. Gorlin, R. J. and Goldman, H. (Eds). St Louis: C. V. Mosby Co.

The Author

P. M. Gilbert, BDS, FDS RCS(Eng), MB, BS, FRCS(Ed), formerly Registrar, Plastic Surgery and Burns Unit, Queen Mary's Hospital, Roehampton Lane, London; now Registrar, Plastic Surgery Unit, Bangour General Hospital, Broxburn, West Lothian, Scotland.

Requests for reprints to: P. M. Gilbert at the above address.