Case 45 A painful submandibular swelling

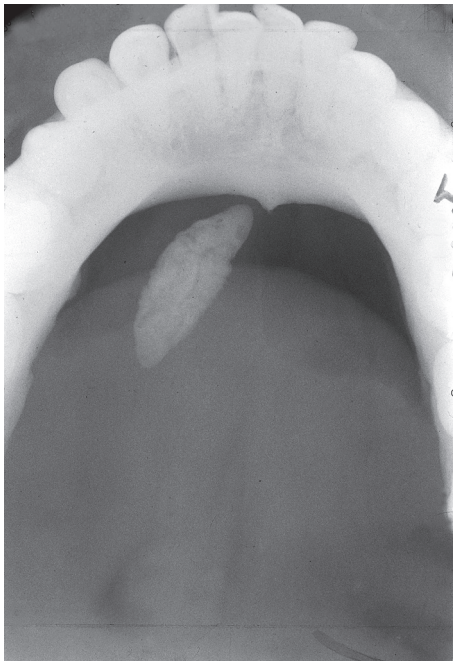

Figure 45.1

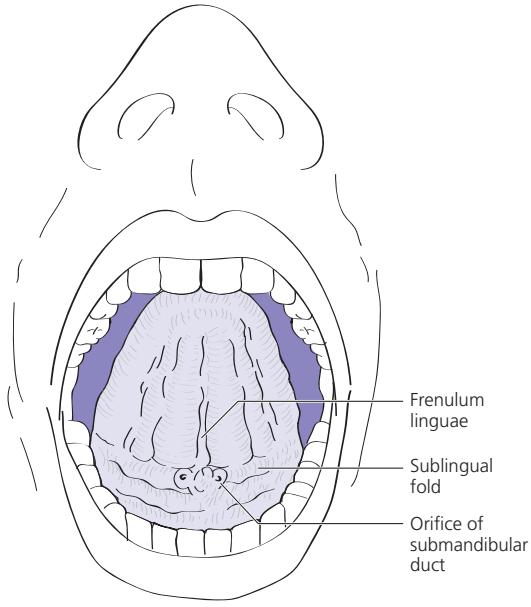

Figure 45.2 View of the open mouth with the tongue elevated.

One of our nurses, aged 23 years, complained of a swelling beneath the angle of her jaw on the right side which became more prominent and distinctly painful whenever she had something to eat – especially if this was spicy or tasty. She was also aware of something in the floor of her mouth on that side. Figure 45.1 is the X-ray we had taken of the floor of her mouth.

What does the film demonstrate?

A radio-opaque calculus in the duct of the right submandibular gland.

How are the submandibular salivary gland and its ducts examined clinically?

First inspect the orifice of the submandibular ducts on either side. These lie on either side of the base of the frenulum linguae (Fig. 45.2). In the case of the normal gland, pressure beneath the angle of the jaw produces a jet of saliva from the duct. Sometimes the calculus can be seen protruding from the duct orifice.

Next palpate the gland on either side bimanually, with one index finger in the floor of the mouth and the other beneath the angle of the jaw. On the normal side, the submandibular gland is felt as a rubbery swelling; on the affected side, the gland is enlarged and tender, and the stone is readily felt in the floor of the mouth (Fig. 45.3).

Do calculi develop in the other salivary glands?

Occasionally in the parotid gland, but never in the sublingual gland, which drains by a series of short ducts into

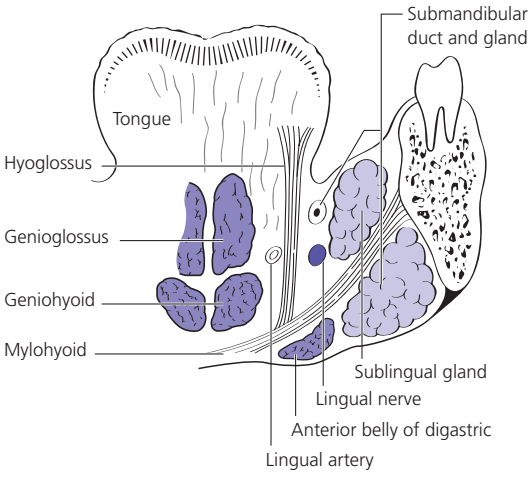

Figure 45.3 Coronal section of the floor of the mouth. N, nerve; A, artery.

the floor of the mouth and into the submandibular duct.

What is the chemical composition of these calculi?

Calcium phosphate and calcium carbonate. The high calcium content is the reason why the great majority of these stones are radio-opaque.

Is anything known about the aetiology of these stones?

The answer is that they are something of a mystery. Unlike what one would imagine, they are often found in patients with clean and healthy mouths and with excellent, healthy teeth. Possible contributory factors include abnormalities of calcium metabolism, dehydration, drugs reducing flow of saliva (e.g. anticholinergics), and oral infections (which may alter the intraoral pH favouring stone formation). Food debris and foreign bodies (e.g. dental plaque, toothpaste) entering the duct have also been suggested to form a nidus upon which stones might form.

How are submandibular calculi treated?

If the stone is seen at the duct orifice, it can sometimes be picked out with a fine pair of forceps. If in the duct itself, as in this nurse, the duct is opened in the floor of the mouth, the calculus removed and the duct left open. Sometimes a clump of stones form in the gland itself, and then the gland requires excision through an incision behind and below the angle of the jaw, carefully avoiding the submandibular branch of the facial nerve (VII).