Sialolithiasis is the most common disease of the salivary glands which is found in approximately 65% of patients with chronic sialadenitis. It is a relatively rare occurrence. According to Levy, et al1, the prevalence of submandibular gland sialolithiasis is 80%, 19% in the parotid and 1% in the sublingual glands.

Submandibular sialolithiasis occurs as a consequence of a hampered flow due to inflammatory stenosis of Wharton’s duct; moreover there are some anatomical factors associated with formation of sialoliths in the submandibular gland, such as:

Wharton’s duct is the longest among the salivary glands’ ducts;
The path of Wharton’s duct goes in an upward direction and the main portion of the duct is wider than the orifice;
Along with these anatomical factors, the peculiar composition of the submandibular gland saliva, that is alkaline and rich of mucin, is relevant for the beginning of the sequence of steps a sialolith is formed by. These are: stasis of saliva, precipitation of salts and
organic matrix formation. Dehydration, allergic states, infection of the oral cavity make saliva denser and start the accumulation of ductal debris which in turn allow the precipitation of mucoid elements and salts in order to form the organic matrix. When the stone reaches a size to obstruct the duct the secretion in the gland is hampered. This condition facilitates destruction of the gland.

Report of the case

D. Emilio, a 64-year-old man came to our observation with the compliant of pain and swelling, correlated with meals, in his left submandibular region that had been present for 4 months. By manual examination was noticed the presence of a little tumefaction in the left submandibular region and head radiograms and ultrasonography revealed a sialolith of 13 mm in length and 7 mm in diameter at its widest portion. Blood pressure and pulse rate were within normal limits. Chest radiograms, electrocardiography, total blood count, urine sediment, liver and kidney function test were also normal.

Under general anesthesia, a surgical resection of the left submandibular gland was performed. An intradermal suture was also performed for cosmetic reasons. Post-operatory course was good and the patient was discharged after two days. No injury to lingual or hypoglossal nerve occurred.

Pathology

Macroscopic pathologic examination showed a gland of 40 mm of diameter at its widest portion (Figure 1).

Microscopic evaluation of the gland revealed a chronic sialadenitis with infiltration of lymphocytes in the stroma and destruction of the acini and of the main duct.

Discussion

Diagnosis of sialolithiasis is easy due to simple and obvious clinical features. Anyway, in order to establish the right treatment, imaging studies are always necessary. Ultrasoundography is the simpler method which demonstrates the sialolith with 100% accuracy. Sialography is helpful to estimate the function of the gland.

On the basis of a review of the literature most of the sialoliths are usually of 5 mm in maximum diameter and all the stones over 10 mm should be reported as a sialolith of unusual size. Moreover most of the stone are found in the Wharton’s duct. Our experience was of a single stone of 13 mm in length and 7 mm in diameter (Figure 2) completely placed in submandibular gland substance.

We decided to perform a surgical removal of the entire gland through an extra-oral approach. The reason of this choice is due to the destruction of the gland and of its main duct caused by the concurrent sialadenitis.

The resection of the submandibular gland is a very demanding act. In the submandibular region there are two thin and important nerve: the lingual and the hypoglossal nerve. This requires the maximum precision in the operating act without which it is simple to cause an incurable damage. A lesion of the lingual nerve results in a deficit of motor fibers to the muscles of mastication and sensory fibers to the teeth and gingivae, the face in the region of the mandible, and parts of the dura. A lesion of the hypoglossal nerve results in deviation of the tongue toward the paralyzed side and thick speech. For these reasons only experienced surgeon should apply in this operation.

References

3) HIRAIDE F, HOMURA Y. The fine surface structure and composition of salivary calculi. Laringoscopie 1980; 90: 152.