Pneumatocele Glandulae Parotis

By Ole Greisen (Aarhus, Denmark)

Pneumatic inflation of the duct system, and even of the glandular parenchyma of the parotid glands is called pneumatocele glandulae parotis. The condition occurs in certain professions, such as glassblowing, and among musicians (horn players).

Recurrent enlargement of the salivary glands is most often due to blockage of the ducts, caused by parotid calculi, or recurring infections. If, however, there is an unexplainable enlargement of the salivary glands, pneumatocele should be kept in mind as a possible cause, even among professions other than those mentioned above. The report of the following case history has therefore been thought to be of interest. The illness was complicated in this case by emphysema of the neck, which is very rare.

Case History

A 9-year-old boy was admitted to the ear ward, due to recurrent enlargement of both parotid regions. He had had parotitis epidemica at the age of 2 years.

During the previous 6 months, he had repeatedly displayed swellings in the parotid regions; twice bilaterally, the other times in the left side. These swellings disappeared spontaneously in the course of a day, and they were accompanied by slightly painful sensations. His general physical state was always unaffected, and he seemed to be fever-free.

Four to five hours before admittance to hospital, a sudden enlargement of the left parotid region appeared, without preceding traumatic incident, and there were slightly painful sensations in the area.

Objectively, the child was found to be small and delicately built, but in good general condition. His temperature was normal, and stethoscopic examination of the lungs was normal.

In front of the left outer ear, and stretching down across the angle of the jaw to the lateral side of the neck was a moderate, not tender, enlargement. Upon palpation a crunching sensation was felt throughout the region. These symptoms were not apparent on the other side. There was no swelling or tenderness about the larynx.

Otological examination indicated normal conditions in the ear, nose, pharynx and larynx. The mucous membrane in the oral cavity was found to be normal, even around the mouth of the duct of Stensen. Pressure on the swelling produced a quantity of secretion mixed with air, which was expelled from the orifice of the left parotid duct. There were no abnormalities in the other salivary glands. On the next day, the swelling had disappeared, and there were no indications of air on palpation.

X-ray examination at the time of admission to hospital disclosed air in the

https://doi.org/10.1017/S0022215100068997 Published online by Cambridge University Press

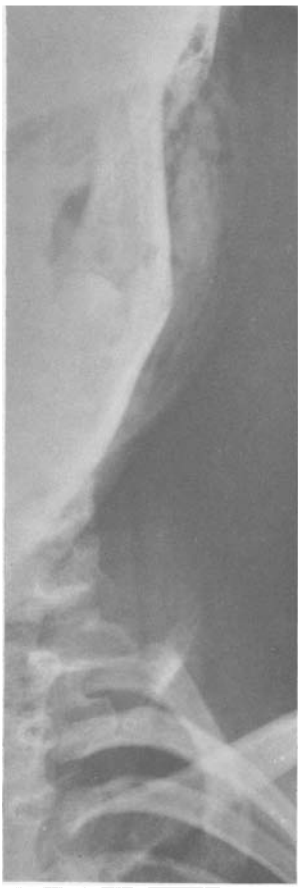


FIG. 1.
An X-ray photograph disclosing the presence of subcutaneous air in the neck and in the left parotid region.

soft tissues of the left side of the neck, and in the left parotid region (Fig. 1). Shadows of salivary calculi were lacking. X-ray examination of the thorax was normal.

Parotid sialography on the left side, performed 4 days after admission, disclosed no abnormalities. The duct system and the glandular parenchyma were filled with contrast material, without showing signs of dilatation or atrophy. There were no interstitial accumulations of contrast material.

The patient, at first, could not give any reason for the condition, but after close questioning later explained that he had caused the condition himself every time, by holding his nose and mouth, and then blowing with relaxed, inflated cheeks.

At the time of a check-up examination made 18 months later, it was reported that the patient had experienced the same symptoms as previously a couple

https://doi.org/10.1017/S0022215100068997 Published online by Cambridge University Press

of months after his release from hospital, but there had otherwise been no recurrence of the condition, nor had there been any inconvenience of any kind. Objective examination gave completely normal indications for all salivary glands.

Discussion

Pneumatic inflation of the salivary glands can primarily be seen in the parotid gland, unilaterally or more often bilaterally. In rare cases, however, it may occur in the submaxillary glands (König, 1951). The condition occurs as an occupational illness among glassblowers, where it is reported to occur at the rate of 6 to 10 per cent. (Wizgall, 1932). Furthermore, it can also be seen among musicians (horn players). In 1940, Gaus reported a case in a young man who had had parotitis epidemica at the age of 9 years. At the age of 14 years, the boy had learned to play the trumpet, and he later experienced recurrent enlargement of both parotid regions, and accumulations of secretion in a dilated parotid. This case was considered to be the delayed consequence of parotitis epidemica, triggered by trumpet playing.

The patient discussed in the case history related above had had parotitis epidemica at the age of 2 years, but it cannot be permissible from these few observations to deduce anything about the importance of parotitis epidemica in the development of pneumatocele glandulae parotis.

The condition seems to be especially prevalent among persons who blow with "full cheeks", while it is more seldom seen among those who blow with tension in the cheek musculature. This contraction of the musculature apparently causes a compression of the duct of Stensen, which prevents the passage of air to the gland.

This pneumatocele can develop acutely or, most often, gradually over a longer period. During the early phases, only the inflation of the main duct is to be seen. Only later are the intralobular duct system and the glandular parenchyma affected. In the beginning, as a rule, high pressure is necessary for the inflation, but later even a slight increase in pressure will cause an enlargement; the pressure increment of a cough, sneeze, or even speech may be sufficient.

In cases where the condition develops gradually over a period of years, the subjective inconvenience is not great. Light, pressing pain may be experienced. In cases where the condition occurs acutely, sharp pains in the cheek may also develop suddenly.

Objectively, one finds a soft, elastic swelling in the region of the salivary gland in question. Palpation produces the crunching sensation as in surgical emphysema. Occasionally, one can see the dilated duct of Stensen as a longish intumescence in the cheek.

The condition may be complicated by infection, or by the accumulation of secretion in a dilated duct or in the gland (Gaus, 1940; König, 1951). Accumulations of secretion and increased enlargement occur especially in connexion with eating. Palpation discloses a fluctuating swelling in the area in question, from which quantities of secretion may be expressed.

In extremely rare cases, the condition may be complicated by emphysema in the neck. A case of rupture of the duct of Stensen, with emphysema in the neck, has previously been reported (König). In the case related above, the

https://doi.org/10.1017/S0022215100068997 Published online by Cambridge University Press

emphysema probably developed through the rupture of a minor duct. The defect could not be detected by sialography performed 4 days after incidence.

In a typical case, where enlargement is confined to the glandular area alone, diagnosis is easy. The typical crunching sensation of air produced by palpation of the area, and the expression of frothed secretion through the orifice of the duct, will provide a positive diagnosis. X-ray examination of the region will provide further proof that it is a question of accumulated air.

Cases which are, as this one was, characterized by subcutaneous emphysema, require that one eliminate the possibility of both traumatic pneumothorax and rupture of a laryngocele. In the present case, there was no report of thoracic trauma, and both the stethoscopic examination and the thoracic X-ray examination gave normal indications, whereupon the first possibility was eliminated. Laryngocele has the same pathogenesis as pneumatocele glandulae parotis, but could be ruled out after the usual laryngoscopic examination and palpation about the skeleton of the larynx proved normal, and because of the lateral position of the emphysema in the neck.

Pneumatocele glandulae parotis does not usually require treatment. The enlargement will disappear of itself in the course of a day or so. In certain occupations, however, the condition may be disabling. Attempts have been made to close the orifice of the duct with small clamps, but it has almost always been necessary to abandon the treatment, as the clamps prove very irritating. One case of excision of the duct and as much of the glandular tissue as possible without injury to the facialis nerve has been recorded (König). A rational approach in cases requiring treatment would be to tie off the duct.

The case described here did not require treatment.

Summary

An unusual case of pneumatocele glandulae parotis, complicated by emphysema in the neck, is described.

The condition, which has earlier been a common occupational disease among glassblowers, is seldom described, and attention is drawn to this condition in recurrent enlargement of salivary glands, or in unexplained cases of emphysema in the neck. Complications, differential diagnosis, and treatment are discussed.

REFERENCES

GAUS, W. (1940) *Z. Hals-Nas.-u. Ohrenheilk.*, **47**, 97.

KÖNIG, E. (1951) *Die chirurgie der speicheldrüsen* Berlin.

WIZGALL, E. (1932) *Die pneumatocele der parotis als berufs-krankheit der glassbläser.* Freiburg.

L. P. Bechsvej, 9,
Risskov,
Denmark.

https://doi.org/10.1017/S0022215100068997 Published online by Cambridge University Press