A CASE OF LARGE DIVERTICULUM OF THE EUSTACHIAN TUBE

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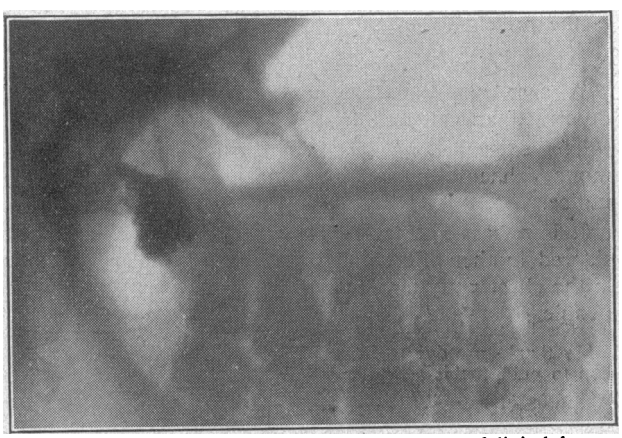
Welin (1941a, 1941b, 1948) and Diamant (1941) have demonstrated, by lipiodol injection, the existence of small diverticula in the petrous part of the Eustachian tube, but no other diverticula in the bony portion have been described. The cartilaginous portion is closely related to the antero-medial aspect of the petrous part of temporal bone, and in radiographs is seen to project from the base of the skull. No diverticula have been reported in this portion of the tube. While stenosis of the pharyngeal orifice and hypertrophy of the pharyngeal tonsil might cause stasis in the pharyngeal part of the tube, this would hardly be sufficient to produce pouches in the cartilage; it would more probably lead to perforation of the drum or to the forcing of secretions into the attic or the mastoid cells. Diverticulum formation in the cartilaginous part must therefore be extremely rare, and it is for this reason that a large diverticulum at this site is reported.

Case Report

A man aged 27, with no relevant past history, began his present illness in December, 1953, without any previous malady except a severe coryza. It started with pain in the region of the angle of the left mandible and styloid process,



Lateral view of diverticulum after injection of lipiodol.

aggravated by clenching the jaw, and deafness in the left ear. Two weeks later a copious aural discharge compelled him to consult an otologist. After local and general treatment the discharge diminished slightly, but the pain remained. At that time he complained of crepitation and bubbling in his ear, especially after swallowing and mastication, deafness, and post-nasal discharge. The discharge was abundant at night, irrespective of the side on which he lay.

In September, 1954, we saw him for the first time. His left ear showed a small perforation of Shrapnell's membrane, a mucopurulent discharge, and granulations in the middle ear. The right ear, the nose, and the throat appeared normal. A plain radiograph showed slight opacity of the mastoid cells on the left side, but no abnormality of the petrous bone or the styloid process. Through the perforation 2 ml. of 40% lipiodol was injected, the patient reclining on the opposite side while his head was rotated so as to fill the epitympanic cavities. A lateral radiograph (see Fig.) now showed retention of lipiodol in two air cells of the petrous bone and a large pouch directly below the base of the skull, in the position of the cartilaginous portion of the Eustachian tube. The lateral oblique view showed that the diverticulum projected postero-anteriorly, and that it was cylindrical in shape. Its volume was about 0.5 ml., and it arose from the lower part of the tube, 3–4 mm. from the pharyngeal opening.

Radical surgery was obviously indicated, and the operation was performed a few days later. With a Hautant transmastoidal approach, the antero-medial aspect of the tympanic cavity was exposed and the granulations were removed. The orifice and isthmus of the Eustachian tube were then enlarged, and the diverticulum was identified without difficulty. Its mucopurulent contents were aspirated and its walls curetted and cauterized. The wound was drained and closed, 250 mg. of oxytetracycline being left in the tympanic cavity. The drain was removed on the fifth day and the wound healed by first intention. The aural discharge dried up, and the pain, crepitation, and post-nasal discharge had all disappeared by the tenth day. The drum perforation was still under treatment at the time of writing, and had nearly closed.

Discussion

It seems most unlikely in this case that the pouch was congenital, as such anomalies are not found in cartilage. A more acceptable theory is that it was the result of degeneration and an inflammatory process secondary to obstruction of the pharyngeal orifice, the perforation of the drum being due to the same cause. Once the diverticulum had formed it became a focus of chronic infection, probably due to the most destructive organism of the middle ear, *Bacillus mucosus capsulatus*. The presence of previously existing air cells can be ruled out, as cartilage never contains them. The subacute course of the infection and the absence of calcification and caseous material in the cartilage are against a tuberculous origin. Once the diverticulum had been obliterated and normal drainage of the tube established, the symptoms disappeared.

Summary

A single large diverticulum of the cartilaginous portion of the Eustachian tube is described. This condition has apparently not been previously reported. The symptoms of pain, aural and post-nasal discharge, and crepitation in the ear were cured after surgical treatment. The aetiology of the condition is discussed.

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A number of rare incunabula, besides medical books of the seventeenth and eighteenth centuries, are to be included in the sale of the late Dr. T. C. P. Kirkpatrick's library at Sotheby's on April 25–27. (Dr. Kirkpatrick was for 44 years registrar of the Royal College of Physicians of Ireland.) Among the incunabula are: Aegidius Corboliensis: *De Urinis et Pulsibus*, Lyons, 1500?; Philippus Beroaldus: *Declamatio*, Bologna, 1497; Celsus: *De Medicina*, Venice, 1493 and 1497; Bernardus de Gordonio: *Practica sive Lilium Medicinae*, Ferrara, 1486; Lactantius: *Opera*, Venice, 1493; Mesue: *Opera Medicinalia* (a fragment), Venice, 1490; Mesue: *Opera* (incomplete), Venice, 1490–1; Placentinus de Saliceto: *Summa Conservationis et Curationis . . . item Chirurgia*, ms., Italy, 1473; Pliny: *Historia Naturalis*, Parma, 1480; Rhazes: *Liber ad Almansorem*, Venice, 1497.