Otosclerosis

Pages with reference to book, From 279 To 281

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Abstract

Ninety four patients with Otoselerosis, of whom 53 underwent surgery over a period of six years, (1976 to 1981) are presented. Males outnumbered the females and ages ranged from 20 to 49 years. The cause of otosclerosis could be attributed to inheritance and a low flouride content of water. Encouraging results were had after stapedcctomy (JPMA 32:279, 1982).

Introduction

Stapedectomy is common operation in conditions of otosclerosis. The incidence of otosclerosis has been on a decline in the West (Beales, 1979; Hammond, 1976; Shambaugh, 1981) and there are not many studies available from this sub-continent. Variable figures have been suggested as 2% by Morrison (1967), 0.2% by Davenport et al. (1933) and 0.5% by Shambaugh (1949). Hiranandani (1966) calculated an incidence of 0.64% in patients attending on audiology clinic in Bombay; his studies also revealed that the disease was more prevalent in south than in north of India.
Otosclerosis is commonly encountered in Pakistan. The following factors favour its occurrence. Caucasian races are well known to have otosclerosis (Beales, 1981) and Aryans are an offshoot of Caucasians (Bowles, 1977). Dravi-dians, another early branch of Caucasians (Wells, 1965) have twice the incidence of otosclerosis than Aryans. There are pockets of Dravidian population in Pakistan as the Brauhis in Qalat and the fishermen community along the coast (Bowles, 1977). Aryans who entered as immigrant tribes (Rawlinson, 1952) also have scattered descendants in the country.
Cousin marriages have kept the disease active and families of otoscleroses are seen where inheritance is by autosomal dominant trait (Morrison, 1967; Kupur and Pratt, 1966). Flouride content of the water supplied is low (Khan, 1982). It is an established fact that otosclerosis is four times more common in low flouride areas (Daniel, 1969).

Material and Methods

Ninety four patients were included in the study. The male to female ratio was 51 to 43 (Table I)

Table I

Distribution of Otosclerotic Patients Male, Female ratio.

Year	Male	Female	Total
1976	11	9	20
1977	8	11	15
1978	7	6	13
1979	8	7	15
1980	10	8	18
1981	7	6	13
	51	43	94

and the ages ranged from 20 to 49 years (Table II).

Table II

Ages of Stapedectomy Patients.

Age range	No of operations
20–29	25
30–39	13
40–49	14
Total	52

A careful history alongwith the family incidence of deafness was recorded. Clinical examination was carried out which included Tuning Fork Tests with a 512 frequency instrument which is the best guide for the indication of surgery. All patients were subjected to pure tone audiometry.

After making a clinical diagnosis of otosclerosis 53 patients underwent stapedectomy. 31 had it on the right side and 21 on the left.

General anaesthesia with deliberate hypotension was instituted. Valium parenterally was used as a

premedication. Induction of anaesthesia was carried out with Pentothal and suxamethonium. Maintenance was obtained through an endotracheal tube with a mixture of Halothane, oxygen and Nitrous oxide. Tubocurarine was the muscle relaxant of choice. Intermittent positive pressure ventilation was produced by the Manley ventilator. The patient's mead was tilted to a position of 15 degrees to increase the hypotension in the field of surgery. The systolic blood pressure was maintained between 60 and 70 mm Hg with the help of a ganglion blocking agent-Hexame-thonium. In case of alterations in pulse rate and blood pressure, tubocurarine and halothane were adjusted and a few patients had to be given Inderal.

The main presenting symptom was blocked cars. Paracusis Willisi was not a frequent complaint. Sixty patients had tinnitus and there was no vertigo. A family history of deafness was present in forty patients, with two families, one from Sind and the other from Delhi showing a dominant inheritance in three generations. Deafness was usually bilateral with only ten patients having it unilaterally. The tympanic membrane was normal in eighty patients, the rest having abnormalities as shown in Table III.

Table III

Abnormal Tympanic Membranes in 14 Otosclerotics.

Healed Scars	10
Rigid (Thickened)	2
Atrophic	2

A tympanosclcrotic patch was visible in five patients which was secondary to chronic suppurative otitis media. Schwartz sign was present in three cases. The air conduction in pure tone audiogram was below 40 DB in 90 patients and the Carhart (1950) notch was noticed in a few of the cases.

Air bone closure was attained in 45 patients over a period of six weeks after surgery. The tympanic membrane was damaged in two patients, one of them being atrophic. The repair was done with a temporal fascial graft with good results.

Two patients developed immediate sensorineural deafness. One of them a young man, had an obliterative foot plate which had to be drilled. The ether was atype III foot plate which floated and was removed with difficulty. Hacmotympanum was observed in six patients which resolved in six weeks time. One patient had otitis media and lost his hearing within a month. Three patients developed late sensorineural deafness, one six months after surgery following violent blowing of the nose and the other two after one year. All reported too late for re-exploration to exclude a perilymph fistula. One medical student had conductive deafness a year after surgery which was found to be due to a slipped prosthesis. It was satisfactorily replaced.

Discussin

The average man in our Country has a very conservative attitude towards blocked ears and more so towards otosclerotic surgery. It is not considered to be a handicap in the daily living. Only working members of the family who have difficulty in hearing submit to surgery.

The success rate after surgery in procuring a good hearing is high. It is calculated to be 87% in this series. It was also observed that a thick foot plate was no disadvantage in achieving a good result. As quoted by Smyth et al. (1980) "the pathology of an otosclerotic lesion is not a relevant factor in the assessment of hearing results after operation". Also the hearing results of the operated ear were better than that of the non-operated ear and the rate of progressive cochllar dysfunction was reduced which is a common feature of otosclerosis. The Shea and Teflon Piston was used in all patients (Shea, 1958). It has been established that the vein and polythene graft is now a rejected procedure (Beales, 1981; Bahadur and Kacker, 1981).

The post operative followup compliance was poor. It was noted that with good hearing results, the patients abstained from coming for a checkup. This has also been observed by Shea (1971). Schuknecht (1971) reported that the number of patients available for follow up decreases rapidly as a function of time after the operation. He quoted a 10% to 20% drop at the end of one year and 50 to 60% were lost after 5 years. Kos (1969) had only 30% of his patients for follow up after six years.

With the encouraging results, stapedectomy can be classified as a major surgery for rehabilitation of otosclerotic patients. This makes the education of the general masses essential. Also the addition of flouride to the city's water supply is essential.

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