

ABSTRACTS

EAR

Acoustic Trauma in Man. H. P. PELMAN (Chicago). (*Archives of Otolaryngology*, September 1941, xxxiv, 3.)

In persons under 50 years of age with healthy ears, exposure to loud noises such as produced by pneumatic drills, aeroplanes, steam whistles, gunfire and loud machinery, produce a loss of hearing for high tones. The first sign to be noted is a localized depression around 4,096 cycles, both for air and bone conduction. The hearing above and below this level is unaffected and this localized loss of hearing may continue for many years, so that the subject is unaware of his defect of hearing. Should the cause of the trauma continue to operate, the threshold begins to show a depression for frequencies below 4,000 cycles and loss of hearing for the whispered voice is noticed. Loud sounds frequently interrupted are more detrimental to hearing than continuous loud sounds. Sounds of this type are those from repeating firearms, metal stamping machines, and pneumatic tools.

A single exposure of the ear to a strong auditory stimulus, such as that of an explosion, or heavy gun, may cause permanent loss of hearing for high frequencies. Loud noises within a building are more injurious than those in the open. In a group of audiograms from cases of acoustic trauma, A. Simple exposure sounds; B. Rapidly or repeated short and sharp sounds; C. More slowly repeated short and sharp sounds, most of the audiograms showed a dip in the region of 4,096 cycles. The reason for this localized depression remains unexplained. Since the circumscribed defect is produced by causes other than loud sounds, as, for example, syphilis and cranial injury. It has been suggested that there exists a special vulnerability at this point in the cochlea. The noises produced by gunfire were investigated by Prof. Miller of Cleveland using the instrument known as the Phonodeik.

The sound waves from the nose and base of the bullet, with a negative pulse between them, are heard as a "crack", while the noises of the exploding charge is heard as a "boom". At a sufficient distance the two sounds are distinct and both may cause acoustic trauma. The loud and steeply rising pressure pulses near the guns are especially liable to cause deafness, and the sharper the rise, the greater the acoustic trauma. Low frequency sounds are less injurious to the ear than high frequency sounds.

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When the ear is hearing one sound it is less able to hear other sounds, and low frequencies have a greater masking effect than high frequencies. This masking effect has been the subject of much investigation in Chicago and a report of the result is awaited. Rawdon Smith has made the important observation that for high frequencies (1,000 to 2,000), temporary deafness often involved tones an octave above the fatiguing tone. There is a definite relation between the frequency of the stimulus and the audiogram but the greatest depression is not at the frequency of the fatiguing tone. Exposure to a fatiguing tone of 4,096 cycles, for example, produced by a localized drop at 8,192 cycles.

DOUGLAS GUTHRIE.

A Report on Nine Cases of Cerebellar Abscess in Children following Mastoid Operation. FREDERIC SCHREIBER, M.D. (Detroit). (*Annals of Surgery*, September 1941, cxiv, 330.)

The report consists in a discussion on the treatment of nine cases of cerebellar abscess following mastoid operation in children. The cases were watched for as long as was considered safe to allow of the formation of a capsule. Danger signals were slow pulse or respiration rate, increasing restlessness or stupor. Chemotherapy was discontinued before the operation was undertaken. Narcotics and hypnotics were not employed but the incision was made under local anæsthesia. A half-inch trephine opening was made half an inch below the transverse sinus. A small incision was made in the dura and the abscess found with a blunt-pointed cannula. Pus was allowed to drain from the cavity—the drainage taking place on account of the intracranial pressure. No lavage was carried out, but aspiration with a syringe was employed to remove the thick stringy pus which came out last. The wound was firmly stitched. The author considers that drainage through an infected mastoid cavity is a bad neurosurgical procedure. A growth of hæmolytic streptococcus was obtained in each case. One of the patients died as a result of the operation, death being due to a lumbar puncture, and the author sounds a warning against this procedure on account of the danger of medullary herniation. One other case died (from pneumococcal meningitis) after five years of health.

J. F. BIRRELL.

Reconstruction Otoplasty. PAUL W. GREELEY, A.B., M.B. (Chicago). (*Surgery*, September 1941, x, 457.)

A description of a method of plastic reconstruction of the auricle originally devised by Gillies is given in this article. The procedure has been found to be superior to all others. The difficulty of obtaining sufficient cartilage is overcome by using a donor ear.

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The child's mother is usually willing to act in the congenital cases and, for the other cases, a female is chosen because her hair can afterwards be dressed over the ear to cover the effects of the operation. A stent mould is first made of the donor ear. Then an incision is made along the helix of the ear and the cartilage removed. The edges are stitched, and held in apposition by the stent mould. The cartilage is inserted into an incision in the mastoid skin of the patient, and it is found that the skin adheres to the cartilage in a short time. The incision is re-opened and a stent mould covered with a skin graft is inserted. This has the effect of lining the deeper surface of the cartilage and also the denuded mastoid area. The stent is removed in a week's time. The original auricle can be turned down to become the lobule. The author thinks that no attempt should be made to reconstruct the external meatus unless the hearing of the other ear is very poor indeed.

J. F. BIRRELL.

NOSE

Recent Fracture of the Nasal Base Lines of both outer Nasal Walls, with divergent displacement. M. F. METZENBAUM. (*Archives of Otolaryngology*, October 1941, xxxiv, 4.)

After describing the anatomy of the external nose, the writer states that the force causing fracture may be directed laterally or antero-posteriorly. In the former case the nose may be pushed off its base; in the latter case it may be driven between the separated maxillary bones as a cork is driven into a bottle.

The common type of injury are: (1) depressed locked fracture of the two nasal bones at their upper third, (2) depression and fracture of the nasal bones so that they no longer form a V, or gabled roof, and (3) a further and more severe stage of (2), in which the stress is transmitted to the maxillary bones, i.e. a divergent fracture of the nasal base. The present paper deals with the last-mentioned type of fracture, in which the nose is flattened and its base widened. The entire nose, or its osseous upper half, is closer to the face, and the lower ends of the fractured nasal bones may be driven between the nasal processes of the maxillary bones. When the nasal bones are depressed the septum gives way. The two bony elements may overlap or may buckle beneath the periosteum. The cartilaginous elements are usually twisted, but will resume their normal position when the bones have been replaced in their normal relationship. Dislocation of the lower border of the septal cartilage is common, combined with perpendicular fracture of the cartilage. This causes occlusion of one nostril and often asymmetry.

The author describes in detail his technique for the reduction of recent nasal fracture. The nasal cavities are packed with gauze

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soaked with 10 per cent. solution of cocaine, with epinephrine and percaïne injected locally. The first step consists in reduction of of the divergent nasal base by firm pressure with the thumbs, one on either side of the nose. The depressed locked ends of the nasal bones are then elevated by a rubber covered instrument introduced into the nose. This instrument must not pass higher than the ends, owing to the risk of tearing the mucosa which may still be covering a fine fracture of the bones of the skull. The upper parts of the nasal bones are moulded into position by thumb pressure. Finally, the septum is adjusted in the mid-line by Adam's forceps, the blades covered with thin rubber tubing. A copper splint is applied externally, fixed by adhesive plaster, and a Simpson cotton splint is placed in each nostril. Those splints are removed on the following day.

This paper is illustrated by eight figures.

DOUGLAS GUTHRIE.

TONSILS

Laboratory analysis of the content of tonsil crypts as obtained by the wet suction technique. G. W. MCAULIFFE and M. LEASK (New York). (*Archives of Otolaryngology*, October 1941, xxxiv, 4.)

The author of this paper attempts to demonstrate the diagnostic and therapeutic value of the wet suction irrigation method in dealing with infected tonsils. A simple apparatus is described, by means of which the tonsil crypts are emptied and irrigated with normal saline. The irrigation fluid is centrifuged and the sediment is examined cytologically and bacteriologically. Wet suction may be applied up to 15 pounds without causing trauma. The 15 cases are tabulated and a large variety of organisms is noted, the streptococcus hæmolyticus predominating (93%). There was a high percentage of polymorph leucocytes. Erythrocytes were also common, but eosinophils were rare (13%). Three tables accompany the paper.

DOUGLAS GUTHRIE.

Modern Treatment of Acute Tonsillitis by Injection of Bismuth Compound. A. MONTEIRO (Rio de Janiero). (*Archives of Otolaryngology*, October 1941, xxxiv, 4.)

Seven years ago the writer published, in *Annales d'Oto-laryngologie*, an account of the treatment of acute tonsillitis, by bismuth injections. He now gives an analysis of 46 papers by other workers who have tested the value of the treatment.

Mention is made by a number of the writers, of the relief of pain observed within a few hours of the injection, also of the reduction

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of temperature (within twenty-four hours), and of the disappearance of purulent exudate.

All authors are agreed that bismuth has no effect in preventing the formation of peritonsillar abscess.

If the tonsillitis does not improve within 24 hours and recover within 48 hours, it will usually be found that the infecting organism is the staphylococcus or pneumococcus, and not the streptococcus. The latter organism is responsible for 96 per cent. of cases. Bismuth therapy is of especial value for acute tonsillitis in children. Half the adult dose is well tolerated. For adults the dose should not exceed 2 cg. of a soluble bismuth compound or 5 cg. of an insoluble compound. As a rule one injection effects a cure.

DOUGLAS GUTHRIE.

• BRONCHI

Bronchial Adenomata. A. F. FOSTER-CARTER. (*Quarterly Journal of Medicine*, 1941, x, 139.)

Adenoma of the bronchus was first diagnosed post mortem by Müller in 1882 but was not again recognized until 1927. The first cases to be diagnosed during life were described by Kramer in 1930. Since then the condition has been frequently recognized and about one hundred convincing examples have been recorded. In addition to these, twenty-two cases have been encountered at the Brompton Chest Hospital. The writer has described in detail these twenty-two cases and has made a survey of these and also of all the previously recorded cases.

The distribution of the cases between the sexes is approximately equal and the average age at the onset of symptoms was twenty-eight years. Seventy per cent. of the cases were between the ages of thirty and forty. There were no striking aetiological factors, either in descent, environment or occupation.

The most striking features of adenomata of the bronchus is the long duration of symptoms. Kernan described one case with a history of forty years and the longest on record at Brompton is twenty-three years. The average duration in all patients was five years and 87 per cent. had had symptoms for more than a year. The principal early symptoms are hæmoptysis and cough. Hæmoptysis is the more common and occurred in 81 per cent. of cases. Bleeding is recurrent with periods of remission and is not usually great in amount. In some cases it appears to be related to the menstrual periods. In occasional patients it is very profuse, in one there was a loss of over two pints of blood at a single hæmoptysis. Cough is frequent, is dry and irritating and only productive in the presence of secondary infection. Dyspnoea occurs in about one-third of cases and is paroxysmal in one-tenth.

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Infection leads to sputum, pain from associated pleurisy and attacks of pyrexia. In over 60 per cent. of cases septic bronchiectasis, lung abscess or empyemata were present. Collapse of the lung depends on the degree to which the tumour obstructs a bronchus, but plugs of viscid mucus may increase the incidence of collapse.

Radiography indicates the tumour only when it is of considerable size or causes some collapse, and bronchography reveals well-defined filling defects. The tumour is a pale pink, vascular mass, which may be sessile or pedunculated. It bleeds freely on being touched, especially when portions are removed for microscopy or during attempts at removal. Difficulties in diagnosis are from tuberculosis in its early stages and from carcinoma in its later ones. Absence of bacilli from the sputum and the presence of X-ray signs of collapse and of filling defects should serve to distinguish such a case from phthisis, but it can often only be diagnosed from carcinoma after histological examination, though the duration of symptoms should provide a clue.

The strong resemblance between bronchial adenomata and salivary gland tumours is noted and discussed, explanatory microphotographs being exhibited. The histological characters are uniformity of structure and of staining properties, a tendency to glandular formation and the absence of unruly growth. About one-third only show the highly differentiated glandular structure, which had previously been considered typical. The others are more or less undifferentiated and are the type which was confused with, if not included among the carcinomata. A limited infiltration of the bronchial wall has been observed but metastatic spread is unknown.

For uncomplicated adenoma the ideal treatment is bronchoscopic removal with intra-bronchial irradiation. Lobectomy is applied where the tumour has recurred, where there is a large extra-bronchial tumour mass or where the lung has been damaged by secondary infection.

• F. C. ORMEROD.

ŒSOPHAGUS

Perforation of the Cervical Œsophagus with a Flexible Gastroscope.

ARTHUR S. W. TOUROFF, M.D. (New York). (*Annals of Surgery*, September 1941, cxiv, 369.)

The author reports a case of perforation of the cervical portion of the œsophagus as a result of the rubber tip becoming detached from the rest of a flexible gastroscope. The unguarded metal end thus exposed caused a perforation which in ten minutes resulted in bilateral surgical emphysema of the neck. An X-ray showed the rubber tip lying at the root of the neck on the right side opposite

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the lower cervical and first dorsal vertebrae. Immediate operation under local anæsthesia was performed, and the œsophagus reached through an external incision. The tip was removed, but, as the edges of the perforation were bruised and ecchymotic, no attempt was made to close it. Two iodoform packs were inserted and the incision closed. Sulphanilamide therapy was begun, one gramme being given every four hours. The packs were gradually shortened and were removed by the fifth day. Feeding was carried out through a Levin tube in the stomach for six days. On the sixth day the tube was removed and soft foods given by mouth. The patient was discharged from hospital on the eighth day with the wound well healed. Examination some five months later showed that there had been no further difficulty in swallowing.

J. F. BIRRELL.

MISCELLANEOUS

Massive doses of vitamins A and D in the prevention of the common cold. I. G. SPIESMAN. (*Archives of Otolaryngology*, October 1941, xxxiv, 4.)

It has been noted by many observers that the incidence of colds and respiratory infections can be greatly reduced by the liberal use of cod liver oil. The present paper concerns a study of the effect of large doses of vitamins A and D, administered to 54 subjects during three consecutive winters. It was found that the vitamins did not produce immunity to colds when given separately. When both A and D were given, 80 per cent. of the subjects showed a reduction in both the number and the severity of the colds. It must not be assumed, however, that the vitamins are suggested as a panacea for colds. The results point only at the striking differences between those subjects treated with both vitamins and those treated with only one. In a few subjects toxic symptoms were noted, which passed off as soon as the vitamin was discontinued.

The effect of Röntgen and Radium Radiation upon the action of Cilia within the Respiratory Tract. PAUL FRENCKNER. (*Acta Oto-laryngologica*, 1939, xxvii, 297.)

It was discovered by Professor Holmgren in the course of his operative work on otosclerosis that in those cases in which he had placed a small tube of radium in contact with the opening in the horizontal canal, there was occasionally a collection of fluid in the middle ear without any active signs of inflammation. Holmgren wondered if the radium had any inhibitory effect on the cilia of the tympanic mucosa which prevented the transfer of fluid from the middle-ear cleft through the Eustachian tube. Frenckner had already investigated the effects of various reagents on the ciliary

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action but had not used irradiation. He then proceeded to investigate the effects of Röntgen and radium rays on the cilia. He exposed excised portion of mucous membrane to irradiation and studied the ciliary movements under the microscope. He used adenoid vegetations from human beings and portions of the lining mucosa from the maxillary sinus of rabbits. He applied radium to various portions of the nose and sinuses of rabbits during life and then inspected the action of the cilia by microscopy and by direct inspection. Finally he placed tubes of radium in the nasal passages of human beings and afterwards watched the ciliary movement by means of indicators of very small pieces of black paper sown on the surface of the membrane. Cinematographic record was made of some of these latter experiments.

It has been demonstrated that relatively small doses of radium and Röntgen rays weaken or arrest the movement of the cilia.

Ten experiments have been made on animals and forty-one on human beings. The effect of radiation has varied among different individuals and there are too few observations to be able to draw up any rules as to the quantitative effect of irradiation. It was however found that in fifteen cases in which 50 mgr. radium was applied for twenty minutes the ciliary movement was suspended for some hours, in one case 500 R. Röntgen applied at a distance of 30 centimetres resulted in a cessation of movement for two and a half months. Teleradium of 3 grammes at a distance of six centimetres for ten minutes abolished the movement for one month. The author considers that it has been shown that these rays do have a definite inhibitory action on ciliary movement and that further investigation may show that there is a definite relation between the dose and the duration and degree of inactivity.

F. C. ORMEROD.