circular perforation behind and below the handle of the malleus brought into view. Previous to the attack of influenza she had considered her hearing to be perfect, and she had never, as far as she was aware, at any time had any affection of the ears. The right membrane was normal. Under treatment the inflammation of the middle ear was reduced, and the discharge ceased within three weeks. Hearing improved to nearly half the normal distance, but the circular perforation remained.

Here we had an acute catarrhal otitis media going on to suppuration and perforation of the membrane, unassociated with a catarrhal state elsewhere. It occurred in a patient whose ears had previously been perfectly healthy, but whose general health had become markedly depressed as a consequence of influenza. These two cases are types of a series of cases of acute middle-ear trouble occurring in adults which have come under my care within the past two years, and as such I think they may be of interest.

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SNAKE-BITES.

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DURING the year 1891-92 seven cases of snake-bite were treated at the North India Salt Revenue Hospital at Pachbadra, and the cases recovered. The following is a short description of each case, with the mode of treatment adopted.

CASE 1.—B—, a Hindoo male aged thirty years, a sepoy of Erinpura Irregular Force, bitten by a snake (*echis carinata*) on the dorsum of the left foot over the site of the middle cuneiform bone. The two punctures were distinct, edges ecchymosed, and the wound bleeding. Soon after the bite was inflicted the bitten leg became heavy and a sort of low stupor crept on, and the sepoy became drowsy and felt difficulty of breathing. The part above the next joint was tightly ligatured, and the puncture cauterised with burning charcoal. All this was done before the man was brought into the hospital. The punctures were now scarified, and some blood was extracted by cupping, and internally stimulants were exhibited every fifteen minutes, and a hypodermic injection was given of a 2 per cent. solution of permanganate of potassium every ten minutes. Notwithstanding this treatment the case took a bad turn; the stupor began to deepen, so the hypodermic injection of sulphate of strychnine was preferred to the permanganate of potassium; ten minims of which were injected every ten minutes until the entire quantity amounting to one grain and a half had been used, when twitching of the muscles of the face came on, but the stupor now began to fade away fast. The man complained of intense thirst, as if his mouth and tongue were parched, though apparently this was a delusion. Stupor soon passed off, and was replaced by hæmorrhage from the mucous surfaces; even old scars of wounds began to ooze out blood. All these gradually abated, leaving the patient exhausted and weak, but he completely recovered within four days, and was able to do his work, and was sent to his headquarters.

CASE 2.—S. H—, a Mussulman boy aged twelve years, while searching after some books in the hut, was bitten by *echis carinata* on the right ankle, just below the inner malleolus. This boy was brought in at 8 A.M. on Aug. 5th, 1891. A tight ligature was applied to the leg above the injury, punctures, which were distinct, laid open, some blood drawn out, punctures cauterised, and solution of strychnine injected into both arms at intervals of ten minutes. In this case a quarter of a grain produced the required symptoms. Bleeding from the mucous membrane was slight; no stupor was present. The boy recovered on the third day, when he was discharged all right.

CASE 3.—N. K—, a Mussulman Custom pera aged thirty-five years, was bitten by an *echis carinata* on the left ankle just above the outer malleolus. He was brought into the hospital on Aug. 9th, 1891. A ligature was applied in the leg affected, the wound scarified, blood let out, and the wound cauterised. The man was in a state of semi-stupor. Ammonia mixture was given by the mouth every

twenty minutes, but this apparently did not do much good. Strychnine solution was injected subcutaneously in the arms, aggregating one grain and three-quarters of strychnine, when the characteristic symptoms of the drug were produced, and the man recovered and was discharged cured on Aug. 12th, 1892.

CASE 4.—J—, a Hindoo female aged forty, strong built, was bitten by a *bungarus cœruleus* in the left thigh. The part round the puncture was cyanotic and the punctures were distinct. The patient was half unconscious, but could answer questions if loudly put to him. Solution of strychnine was injected into the arms every ten minutes until twitching of the muscles of the face was observed. In all she took three grains in four days. The patient was admitted on Sept. 3rd, 1891, and was discharged cured on the 7th.

CASE 5.—A. B—, a Hindoo lady aged sixty-seven, was bitten by a *bungarus cœruleus* on the night of Sept. 10th, 1891, with apparently the symptoms of Case 4. The puncture was inflicted on the dorsum of the left foot and above the big toe. A hypodermic injection of solution of sulphate of strychnine was made. The patient took half a grain to produce the symptoms. On the third day she recovered, and was discharged.

CASE 6.—M—, a sweeper aged thirty-five, male, was bitten by an *echis carinata* on the left leg, just below the knee-joint. In this case a ligature was applied at once, consequently the system was not much affected by the poison. However, subsequently there was much bleeding from the mucous surfaces. Strychnine injection was tried as before, the bleeding stopped, and the man recovered and was discharged after four days. The man was brought in on Sept. 14th, 1891.

CASE 7.—R—, a Hindoo male aged fifty-five, stout built, a Custom jemador, was bitten on the dorsum of the right foot just over the base of the inner cuneiform bone. The punctures were distinct, the site around was ecchymosed, and the man was in a stupor-like state. He complained of severe headache and tightness of the chest. He was brought to the hospital on March 28th, 1892, at 9 A.M., one hour after the infliction of the puncture. A tight ligature was used, and blood let out from the punctures; but in this case a remedy tried by the late Dr. Dymock of Bombay, used by him in *echis* bites, was suggested by the district magistrate, and this officer supplied some herbs (*Pagostemon parvifolius*), and this herb was ordered to be chewed in from two to four drachm doses. Apparently it produced no good results, and probably because the herb was dry and had lost much of its potency. So the strychnine had again to be resorted to, and the man recovered well. The leg bitten was inflamed, but soon improved under the influence of warm fomentations only. This man took four grains of sulphate of strychnine to effect a cure.

Observations.—In connexion with all these cases the following facts were noticed:—1. The punctures were usually well directed and deep. 2. The edges, almost without any exception, were ecchymosed. 3. Bleeding from the puncture in every case was invariably present. 4. Bleeding from the mouth, nose, and sometimes from the ears, chemosis of the conjunctivæ and urethra, and bloody urine were invariably present in many cases. 5. The blood was thin and did not coagulate; colour, however, was bright, like an arterial blood. 6. Stupor and unconsciousness were not constant symptoms; some showed more tendency to them, while others had no such symptoms at all. 7. After cure having been effected, for some time the patients showed signs of irritability of temper, and were more sensitive to extremes of temperature, and occasionally epistaxis was present.

Remarks.—During the year over 760 snakes have been killed. Of these, vipers are the most common; and of these *echis* is the most common of all, and most venomous. Other varieties are rarely seen. Three varieties of *echis* have been seen. In one the undulated lateral marks are interrupted and not continuous. In the second variety there exist alternate black and white square dots over the dorsal ridge. The third variety hardly differ from the second one, but this has a pale-yellow colour, while others have a greyish or earthy colour. These snakes are most virulent in the early summer months. In my hands certainly in viperine poisoning strychnine has proved useful, and I hope those who have better opportunities of performing experiments will extend their investigations still further.

Pachbadra Rajpootana.