dred and sixteen ounces. The right lobe was studded with cancerous growths, varying in size from a hazel-nut to a large orange. There was one large mass in the centre of the left lobe. The glands in the vicinity of the common duct were much enlarged from cancerous growth, compressing the same completely. The ducts behind were much dilated, and full of tenacious viscid bile. There was about a pint of pale straw-coloured fluid in the cavity of the peritoneum. All the tissues were tinged yellow; but there was no cancerous deposit in any of the other organs or parts scrutinised.

CASE IV. Primary Cancer of the Liver: Internal Hemorrhage: Death.—In May 1872, a cachectic Hindoo, aged 52, was under my care with enlargement of the left lobe of the liver. It had been first noticed four months before. It was very tender and painful. By its pressure upwards, it embarrassed the action of the heart, thus somewhat elevating the area of the cardiac dulness. Downwards, it reached the umbilicus. Laterally, it occupied a considerable portion of the left hypochondrium. Posteriorly, it unduly compressed the stomach, causing hiccups, nausea, and vomiting. It bulged prominently forwards. By placing the hand firmly upon it, the impulse of the aorta, communicated at each systole, could be distinctly recognised. There had been frequent febrile exacerbations. There was no jaundice. There was considerable cachexia and emaciation. There had been no hectic or colliquative night-sweats. There was no clear history of a rigor. Still, as he had been sent to me as having hepatic abscess, and as there was some sense of what to me appeared to be deep-seated fluctuation, an exploration was made with a fine aspirating needle—only, however, with the result of obtaining a small quantity of material, made up of blood-cells, large irregular cells, a few endogenous cells, and an immense proportion of nuclear-looking bodies. The patient died suddenly on June 20th. At the *post mortem* examination, twelve hours after death, about a couple of pints of blood (partly fluid and partly coagulated) was found in the peritoneal cavity, having escaped from a large fungating cancerous mass springing from the left lobe of the liver, the structure of which had been almost completely destroyed. The right lobe was unaffected. No other organ or part was involved.

REMARKS.—The chief aim I have had in view, in describing these four cases of primary cancer of the liver, has been simply to draw attention to some points bearing upon its diagnosis. Beyond palliation, nothing can be hoped for from the administration of drugs. But the earliest possible arrival at an opinion concerning the probable nature of the case presented is, nevertheless, very important—inasmuch as it may be the means of saving the patient from much harassing and drastic treatment. Thus might the symptoms due to the absence of bile from the alimentary canal, on the one hand, or to its presence in large quantities in the blood, on the other, be materially alleviated. The difficulty of establishing a correct diagnosis is enhanced by the facts, that primary carcinoma of the liver usually commences painlessly in the substance of the organ, and that it may attain considerable dimensions before attention is attracted to it. Thus, in the first three cases, it probably existed some time—how long it is impossible to say with anything like precision—before the glands in the portal fissure became sufficiently enlarged to cause jaundice by compression of the ductus communis choledochus. There is reason to believe that the obstruction of the duct is effected insidiously, gradually, and painlessly. Especially is this accomplished with freedom from pain when the cystic duct is also occluded simultaneously, or soon after the closure of the common duct. In this way, the channels behind become, in a measure, reconciled to an excessive accumulation of bile; the urine becomes dark-coloured, carrying off the bile absorbed for some time prior to the date of complete obstruction, and so preventing the outward manifestation of jaundice. When the occlusion is perfected, jaundice makes itself apparent in twenty-four or forty-eight hours, and persists with intensity, increasing in proportion to its subsequent duration, during the brief remainder of the patient's life. I have never been satisfied that, in the earlier stages, pain has been referred to the site of obstruction. When the cancer-growths approach the surface, causing intense tension of the capsule and irritation of the superjacent peritoneum, pain is doubtless produced. But it will have been observed, from the conduct of the three first cases narrated, that enormous enlargement may take place without pain or tenderness being complained of. In the fourth case, there was a good deal of pain due to peritoneal inflammation; but there was no evidence of its existence until the growth had reached a considerable size.

That a large portion of the parenchyma of the liver may be gradually and painlessly destroyed is demonstrated in large hydatid cysts, centrally situated; yet, a sufficiency of bile is secreted for the wants of intestinal digestion, the support of the blood, and the maintenance of animal heat. So, indeed, within certain limits, it may be with the invasion of carcinoma. The grand distinction is that, as the growth advances, the malignant or cancerous cachexia is soon developed with

marked and progressive emaciation; and these conditions are much aggravated and intensified if jaundice, as is generally the case, be present. It must be recollected that jaundice may occur painlessly from enlarged glands due to syphilitic or tubercular growths, or to other causes. The further progress of the case, either towards amelioration or the contrary, will enable the physician to add clearness and precision to the diagnosis during the middle and later periods of life. In most cases, jaundice supervenes about five or six months before death; and, when once developed, it not only never disappears, but becomes more and more marked and intensified. The advent of death is chiefly dependent upon the inability of the kidneys to go on ridding the blood of the bile with which it is being constantly poisoned and contaminated.

TREATMENT OF SPRAINS.*

By R. DACRE FOX, F.R.C.S. Edin.,

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THE frequency with which sprains occur in general practice, and the somewhat unsatisfactory results of the treatment ordinarily adopted, induce me to bring forward a method that I have used in a great many cases with considerable success. Sprains may be broadly divided into two kinds, mild and severe; the former consisting merely of a temporary overdistension of the parts around a joint, which rest and anodyne applications usually soon cure; the latter involving, as I believe, much more serious pathological results, which the following plan is specially contrived to obviate.

The effects of a severe sprain are, that the fibrous ligaments controlling the movements of the joint and binding the tendons in their grooves become overstretched, swollen, and softened; the cellular tissue about the ligaments and in the tendon-grooves becomes oedematous; and plastic material is exuded; while, as a consequence of these changes, the tendons are displaced in their beds. If this condition be not actively treated, it may, and often does, lead to continued lameness, due, in all probability, partly to a diminution in the calibre of the tendon-groove, with impaired muscular action, and partly to the torn ligaments and bruised cellular tissue having undergone changes which render them incapable of adapting themselves to the movements of the joint, which are consequently impeded. I believe this result may be prevented by the application of firm direct equal pressure, applied manually at first, and kept up and controlled by pads placed in the line of the tendons, and kept in position by properly shaped plasters and bandages, and sometimes by splints. This pressure helps to disperse the oedema, to replace the tendon in its normal position, to hasten the absorption of any plastic exudation, and thus to prevent diminution in the calibre of the tendon-groove. I cannot say this is a novel method of treatment; but I think it is one not usually practised, partly because it entails the expenditure of much time and trouble, and partly, I feel sure, because there is and has been a tendency to underestimate the inconvenience and distress arising from a badly sprained joint.

The common practice, in treating a sprain, is to put on a bandage, telling the patient to take it off if the joint becomes painful, and to substitute warm water fomentations. When the swelling has subsided, if the injury be not so slight as to be already cured, a liniment or the application of iodine is generally ordered. Very frequently the tight bandage causes inflammation, while the rubbing and painting are practically useless. There are numbers of cases of slight sprain, indeed, which will get well with comparatively little treatment or none at all; but in that more severe form where, after an inflammatory or at least exceedingly hyperæmic stage, swelling takes place, with the results I have described, the application of these remedies does not prevent the joint from being left rigid, painful, and unfit for use for a very long period. Now it is, as I have said, in preventing all this, that the plan of treatment by direct, equal, and continuous pressure will be found exceedingly valuable; for, where it has been properly carried out, I have always found that the joint returns quickly to its normal condition—pain being speedily relieved, and rigidity prevented. The treatment may be divided into two stages; the first lasting from a day to a week or longer, during which the treatment has to be directed to averting inflammation by rest, warm applications, anodyne lotions, etc.; the second commencing when the joint has become cold, swollen, and painful on movement—in fact, when the injury has assumed a more or less chronic character. It is during this second period that I believe the active treatment I advocate ought to be employed. It is important

* Abridged from a paper read before the Lancashire and Cheshire Branch.

not to commence this until the surface-heat is normal; for undoubtedly, when any tendency to inflammation exists in the tendon-sheath, pressure aggravates it, and I have known it to lead to untoward results.

It is of course impossible, within the limits of this paper, to describe the special adaptation of this method to each joint; but I will take as an illustration the ankle. If a wire be passed round the joint so as to impinge on the two malleoli and the tendo Achillis, it will define three or four well-marked hollows: one on each side of the tendo Achillis behind each malleolus, one in front of the fibula, with a fourth shallower one in front of the tibia. When the ankle is severely sprained these fossæ become obliterated, and are filled up with effusion, overstretched ligaments, and displaced tendons.

Observation has led me to believe that there are very few sprained ankles in which muscular displacement to some degree does not take place. It most commonly occurs in front of the outer malleolus, involving the outer part of the annular ligament, the extensor longus digitorum, and the anterior fasciculus of the external lateral ligament; next, perhaps, the posterior peroneotarsal ligament and structures behind the external malleolus. Cases of similar overstretching and displacement on the inner side of the ankle are happily rare; but in gravity they bear much the same relation to the former as a Pott's dislocation does to a simple fractured fibula. I will assume an ankle-joint has sustained a severe sprain all round, and has arrived at the chronic stage: modifications of the treatment of such a case will meet all that are likely to occur. To carry out the first principles of treatment by direct, *equal*, and continuous pressure, it is clear the fossæ mentioned above must be filled, or rather their sites covered by pads so as to cause the retaining plasters, bandages, and splints to exercise equal pressure everywhere. By making pressure with the thumb from below upwards in the line of the fossæ, a good deal of the œdema may be squeezed away and the displaced tendons in some degree restored. I make, as a rule, five pads (of tow and lint or leather): two about four inches long by one inch wide (one a little shorter than the other, so as to be better adapted to the curve extending upwards from the dorsum of the foot to the crest of the tibia); another shorter, broader, and thinner, to place over the tibialis anticus and extensor proprius pollicis; and two, three or four inches long and bolster-shaped, to fill in the posterior fossæ on each side of the tendo Achillis. It is often advisable, in old-standing cases, to supplement the pads by strips of plaster to ensure firmer pressure. Both pads and strips of plaster should be made exactly to fit, as, if too large, they are useless, from the pressure being too diffused; and, if too small, they exercise too little pressure. A moment's consideration will render this obvious. If too large a pad, for instance, be placed over the outer postmalleolar fossa, its edges rest on the tendo Achillis and outer malleolus like the piers of an arch, leaving the fossa itself untouched. To keep these pads in their place, I use a long extended half-moon-shaped piece of plaster (emplastrum saponis spread on leather), long enough for the ends to overlap in front when the heel is placed in the centre, and a narrow oblong piece above this, placed round the lower part of the leg, to cover the upper part of the pads. The handiest way to apply the pads is to place an India-rubber band above the ankle, to slip the pads under it, and then, planting the heel in the centre of the curved plaster, to bring the two ends across the front of the joint so as to overlap. The pads having been secured in position, the elastic ring is to be cut, and the oblong piece of plaster put on so as to encircle their upper ends; lastly, the whole ankle is to be firmly bandaged. Amongst the working classes, or in the case of an uncontrollable patient, it is advisable to apply two thin splints over the anterior pads, keeping them in position by a long strip of adhesive plaster. Where there is much superficial ecchymosis, where there are bullæ, or where there is unhealthy-looking skin, instead of using soap-plaster, the pads may be kept in position and pressure maintained by a piece of lint on which ointment has been spread. Calamine ointment made stiffly is clean, and not uncomfortably greasy. If, as occasionally happens, even this should cause irritation, warm wet lint covered by oiled silk may be advantageously used over the pads, and secured by a firm bandage; but neither of these applications can compare in efficiency with the soap-plaster spread on leather.

It is, as I have said, impossible in the limits of this paper to describe the method of adaptation of the pads to all the different joints; but a very little consideration will suggest the shape, size, and thickness necessary to be employed in each case.

It is reported that Professor Krafft-Ebing has resigned his office as director of the asylum at Gratz, the reason assigned being that he has been deprived of the material for clinical instruction by a resolution of the public authorities no longer to admit patients in easy circumstances, in order to increase the accommodation for those of the poor class.

THE FORMS, CAUSES, AND TREATMENT OF TINNITUS AURIUM.*

By W. DOUGLAS HEMMING, F.R.C.S.Ed., etc., Bournemouth.

THE subject of tinnitus aurium being one of those selected for special consideration in the Subsection of Otology, I thought it might be as well, partly as an introduction to the discussion, to give a slight sketch, necessarily of course brief and incomplete, of the various forms of the affection, its most common causes, and the methods of treatment found generally valuable. Into pathological considerations I do not propose to enter, confining myself entirely to purely practical points.

Tinnitus is one of the commonest symptoms coming under the aural surgeon's notice, and it is decidedly one of the most intractable. It has been, by some authors, treated of almost as a distinct disease; this, however, it cannot be considered, as, though cases may, and do, occasionally occur in which no morbid condition is discoverable in any part of the organ of hearing, yet, even in these instances, there is, if not any local lesion, some deranged condition of the system interfering with the circulation or innervation of the auditory apparatus, and thus originating the symptom.

Of the various forms and kinds of noises, the descriptions given by patients are often perplexing, and not seldom ludicrous. The account varies with the occupation of the patients and the sounds most familiar to them. Careful consideration and examination of the various descriptions given in large numbers of cases show that noises in the ears may be divided into about six classes, which for convenience I will here arrange in tabular form, with the causes producing them in corresponding column, upon the lines first laid down by Dr. Woakes.

KIND OF NOISE.

1. Tidal "to-and-fro" noises, like the sound produced when a shell is held to the ear.
2. Humming or buzzing noises, like the sound of a humming-top or the buzzing of a bee.
3. Gurgling or bubbling noises, as of air bubbling through fluid.
4. Rustling or crackling noises.
5. Constant, rushing noises, like the falling of water in a cataract.
6. Pulsating noises, often said to be like the beating of a drum; frequently synchronous with the pulse.

CAUSES.

Tobacco; chronic catarrh of the middle ear, ending in undue contraction of intrinsic muscles.

Impacted cerumen, eczema, foreign bodies or parasites in the external meatus.

Fluid in either (a) the tympanum, or (b) the Eustachian tube; the result of catarrh.

Deficiency of cerumen; (hairs in the meatus or on the membrane give sounds like an Æolian harp); acute catarrh in its later stages.

Venous congestion of the labyrinth.

(a) Extra-aural causes, anæmia, aneurism, etc.; (b) Arterial congestion of the labyrinth.

The above are the principal forms in which we find the symptom showing itself. In considering a little more in detail the causes of them, it will be convenient to divide them into two great classes, extra-aural and intra-aural, and to subdivide the latter class again, in accordance with the three divisions of the organ of hearing.

The extra-aural causes of tinnitus may depend upon a derangement of some part of the body in the immediate vicinity of the ear, or may be due to a morbid state of the system generally. Causes situated in the immediate vicinity of the auditory apparatus are such as narrowing of a vessel, for example, a branch of the temporal, of the posterior auricular, or of the carotid artery. The position of this last-named vessel renders any abnormality in the circulation of blood through it especially likely to produce aural symptoms. The cause in other cases will be more remote, and may be found in an aneurism of a branch of the aorta or of that vessel itself.

Of general constitutional causes, anæmia is a very common one, the well known *bruit de diable* propagated from the vessels of the neck causing sounds which in this case, as well as in aneurism, are of a pulsating character. Other general causes are numerous; bathing, mental excitement, overwork of the brain, depression of spirits, hysteria, hypochondriasis, gout, dyspepsia, obstructed portal circulation, exposure to blasts of cold air, the effect of explosions or of artillery practice, have all been mentioned by authors as causes of the symptom. The effect of quinine in producing tinnitus is also well known.

Childbearing and lactation are frequently accompanied by troublesome tinnitus, which is also common about the menopause. It is probable that, in these cases, the actual cause is found in the anæmic

* Read in the Subsection of Otology at the Annual Meeting of the British Medical Association in Cork, August 1879.