the spread of disease and its pauperising influences among the lower orders as necessarily react upon the health and the pocket of their wealthier neighbours.

It is here that our trained nurse, who is not above her work, steps in beneficially. She may liberate the healthy for their outdoor work by taking a portion of their indoor duties upon herself. She is not satisfied with binding up the sore leg, or ministering medicine and wine to the sufferer; but she tidies the room; she empties the dirty utensils; she makes the bed, and places the patient in the best possible hygienic conditions. This is clearly not the doctor's province; and, unless he have an intelligent aide-de-camp in the nurse, much of his time will be thrown away. But with how much more confidence in a successful issue will he order his appliances and remedies when he can rely upon their being properly carried out, and when he knows that, in addition, the great cause of hygienic management is equally attended to during the intervals of his visits? And then who that has learnt to appreciate, as I have had many opportunities of doing, the invaluable aid of a good nurse in noting prominent features of a case of illness, and recording the changes that take place, but will hail the advent of such a person who understands the importance of the secretions, who knows some of the characteristic features of dangerous diseases, such as typhus, enteric fever, rheumatic fever, inflammations of the viscera, and eruptive fevers, who can take thermometric observations, and who can distinguish the malingerer and the hysterical from the sufferer struck down by serious disease? True, there are inefficient, gossiping, and uneducated nurses still to be found; of these I do not speak; but I maintain without hesitation that the class of nurses that are being or to be sent out from this institution will not fall under such head, and that we may ask you confidently to trust us so far as to believe that there is no intention of doing anything but what will facilitate your ministrations, and confer the greatest benefit upon your patients. If you anywhere or at any time meet with any shortcomings on the part of the nurses we send out, I would ask you to point them out to our Lady Superintendent, who, I am well assured, will be grateful for any hints or suggestions with which you may be disposed to favour her. It is because the Executive Committee desire to receive them now, at the outset of our career, that you have been invited to attend here to-night; but, before expressing your own views on the subject before us, I would venture to call upon Captain Fortescue to give you a short *résumé* of the actual state of the institution at the present moment, and then upon Dr. Robinson and Dr. Steel, who have already seen something of the manner in which our nurses work, to state their impressions, and to favour us with their experience.

Gentlemen, this meeting, though unaccompanied by any ostentation or ceremony, is in reality the inauguration of the house and the extensive work associated with it. But, quietly and unostentatiously as the work has commenced, it is hoped that it will be carried on energetically, perseveringly, and, with your help and the help of many future generations of medical men, successfully. Large funds will necessarily have to be provided; but, if the work is to have that national scope which I believe to be necessary for the full realisation of a complete sanitary organisation, I trust that our local governments will not fail to assist us, and to redeem a private undertaking from the perils that necessarily surround it so long as it depends upon fortuitous charitable support. In the meantime, it is comforting to know that men and women of the highest social standing and wealth have recognised in the most practical manner possible their sympathy with the movement, and that for the present at least it is not threatened by an absence of the *nervus rerum*.

If the Society have your decided moral support, which you are able to afford it in so many directions, I believe that it may look forward to many years of usefulness, and that our children's children will derive untold benefits from this meeting, and the endeavours which will result from it to lighten the burden of sickness among our labouring population, and to spread the knowledge of sanitary laws among our least educated fellow-countrymen.

CALCULI IN THE PREPUCE OF A CHILD.—At a meeting of the medical Doctoren-Collegium in Vienna in November 22nd, Dr. Fridinger showed twenty-three uric acid calculi, which had been found in the prepuce of a child a year and a half old. The child had phimosi to such an extent, that it could void its urine only by drops and with great effort. The prepuce was always dilated into a swelling as large as a goose's egg. The operation of circumcision became necessary; the calculi were first removed, and then the hypertrophied prepuce. The calculi were examined by Dr. Ultzmann, and were found to consist of a nucleus of uric acid of the size of a hempseed, over which were layers of urates and earthy phosphates.—*Allgemeine Wiener Medizin. Zeitung*, November 30th.

CLINICAL LECTURES

ON

MOVABLE BODIES IN JOINTS.

BY RICHARD BARWELL, F.R.C.S.E.,
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LECTURE I.

GENTLEMEN,—You have, in the last few weeks, seen me remove three loose bodies from the joints of two patients; in the one, D. G., a single cartilaginous growth; in the other, A. D., two lipomatous tumours. To these cases, I will add the account of one recently occurring in my private practice of a very hard bony growth. All these were removed by direct incision, all of them successfully; not only as regards the life of the patient, but also with perfect preservation of all the joint-functions. Indeed, you saw those that were operated on in these walls get well without a bad symptom. Those of you who have at all studied this subject in the usual text-books of surgery, especially in those compiled fifteen or more years ago, may well consider such procedure as subversive of their teaching, or such operative boldness as unjustifiable, even though in the present instances successful. I propose, therefore, to carry you with me through a rapid survey of the results of former and of present operations by different methods—of their dangers, and how to avoid them. To make all these matters comprehensible, however, it will be necessary to preface the more practical part of the subject by a short study concerning the constitution and development of these bodies.

Two of the cases above named are examples of the most common constituents of loose bodies, viz., cartilage and bone*, the third of a very rare form in joints—the lipomatous; besides these, have been found fibrous or fibromatous substances; and occasionally the body is not a growth at all, but simply a portion of the natural joint which has become detached by injury. The bony and cartilaginous constituents are not unfrequently mixed in the same growth; the bone may then either form an external crust or shell to a cartilaginous kernel, or this position may be reversed; again, these two substances may, in rarer forms, occur in alternating layers.†

In size, these bodies vary from the minutest distinguishable point to the bigness of a horse-chestnut. They are often multiple—in the case of Alice D., I excised two, but many more have been found. In June 1861, I saw, among my out-patients at this hospital, a sailor, forty-three years old, who had in his left elbow, which was much distended with fluid, eleven loose bodies distinctly separable, and capable of being enumerated; besides, above the inner condyle, where the distended synovial membrane formed a distinct pouch, was a mass of the size of a bantam's egg, which consisted of various-sized particles more or less movable upon each other, and which were evidently a non-countable number of such bodies. The man had sustained a fracture through the condyles thirty-nine months previously, *i.e.*, in the early part of 1858, and was treated by me. He had quite recovered the use of his arm, but the joint gradually swelled with hard work aboard ship, and he returned from a whaling expedition with the elbow in the above state; the joint was freely movable, and only occasionally painful. I tried to detain this man; but, after seeing him two or three times, he went to fulfil an engagement, promising to place himself under my care on his return, but I never saw him again.‡ Mr. Berry of Kentucky is stated by Pirrie (*Principles and Practice of Surgery*, 3rd edition, p. 343) to have excised from the knee-joint of a negro thirty-eight such bodies. Cases, too, have occurred in which, after the removal of one such growth, another, in some instances two or three more, have slowly formed.

* The word "bone" is not intended to imply an osseous body, with its distinguishing anatomical elements. Certain of the growths are possessed of more or less well formed lacunæ with canaliculi; others, of lacunæ without canaliculi. In either case, Haversian systems are absent, although in rare instances their formation appears to have been vaguely attempted. For the most part, the so-called bony bodies are mere granular calcifications of a previous substance, and these are the hardest and stoniest of them all.

† I have reason to believe this to be only a stage towards entire calcification. The cartilage itself may be of the hyaline or of the fibrous variety; and the two forms are generally mingled if the tumour be of notable dimensions.

‡ I relate this case here as aiding in the sequel to throw light on the etiology of these formations.

In shape, they have a tendency to four forms: 1. Plates either bi-concave, concavo-convex, or bi-convex; 2. Round, oval, or chestnut-shaped; 3. Conglomerate or mulberry-shaped; 4. Pear-shaped (chiefly the lipomatous). The last two forms are rare.

The predilection of these bodies for the knee is remarkable, so much so that a single loose body in any other joint is quite a rarity. They never, as far as I know, have given rise to operative interference in any joint other than the knee, and once (an Italian case) at the elbow.

Since 1558, when Ambrose Paré, in opening an "aposthume" in the knee-joint of a barber, let out with the matter a loose cartilage, the mode of the formation and growth of such bodies has been a subject of much interest and of controversy; a matter hardly to be wondered at, seeing the different constitutions of these bodies, and that their origin is even more multifarious, namely: 1. By hypertrophy and metamorphosis from one or more of the villous-like synovial fringes; 2. By transformation of a spot of the subsynovial cellular tissue; 3. By growth from the periosteum at the edge of the articular cartilage; 4. By organisation of a clot of fibrin or blood effused into the joint; 5. By direct growth from the articular cartilage (ecchondroma); 6. By detachment through injury of a piece of the normal joint.

The first of these, more particularly described by Mr. G. Rainey (*Pathological Transactions*, vol. ii, p. 110), takes place thus. In certain parts of the joints, the synovial fringes are more developed than elsewhere, the villus-like processes larger and ramified into secondary sacculi, which are attached to the primary either by pedicles more or less long and slender, like the foot-stalk of a leaf, or are sessile, like the lateral growths of some sorts of cactus. In neither case do the secondary sacculi carry any vessel; they are nourished by, and probably elaborate synovia from, the fluid poured by the artery into the primary sacculus. Under circumstances hereafter to be discussed, one or more of these bodies take on a larger growth, and, in its substance one, or two even, little nests of cartilage-like cells are deposited among the tissues; these gradually gather around them hyaline or fibrous substance, and the growth becomes a nodule of cartilage. The stem by which it was attached, and through which it was nourished, becomes, as the body is propelled hither and thither in the movements of the joint, dragged upon, stretched, and thinned, until it may give way and leave the body quite free.

The second mode of growth is by direct metamorphosis of tissue. There are not a few conditions in which such changes occur in the neighbourhood of joints and elsewhere. Under the influence of a distinctly localised hyperplasia, probably of inflammatory origin, a few cartilage cells are deposited among the fine areolar tissue immediately beneath the synovial basement. Gradually gathering hyaline material around them, they form a thin cartilaginous or sometimes ossifying plate, which, as it grows in size, bulges the synovial membrane into the joint-space. Increasing in thickness, and subject, therefore, to more and more pressure, it protrudes further and further, until it quite intrudes, and hangs by a broad fold—a sort of mesentery upon the side of the cavity. This, as in the last case, is gradually pulled upon, stretched out, and thinned, until it gives way.

The next mode is similar, but the place of origin, and often the etiology, are different. The growth in the third method takes place from the periosteum at the spot where it is joined by the synovial membrane. In certain forms of disease, such growths may be counted by scores. The process whereby a single one is formed and protruded into the joint is mechanically the same as by the second method.

We are indebted to John Hunter for our knowledge of the fourth mode of growth, which is, however, very rare, and only can be a sequela of an effusion of blood or fibrin into the joint-cavity, whether such effusion arise from a small wound or other injury, or from a previous synovitis accompanied by hæmorrhage or fibrinous exudation. Either product may become dissolved in the synovia, then coagulate and adhere to any fortuitous part of the surface on which it may fall; or it may never quit the effusing surface, but lie there as a false membrane, become organised, stalked, and then free, in the same way as the other formations.

Direct growth of a tumour from the surface of an articular cartilage, an ecchondrosis comparable to an exostosis from a bone, is a very rare event, its etiology entirely obscure.

A certain number of cases are on record in which, after death, loose bodies the subjects of operation have been found accurately to fit into gaps left by detachment in the substance of articular cartilages. One of these is recorded by Klein (*Virchow's Archiv*, Band xxix, Hefte 1 and 2), another by the late Mr. Teale of Leeds (*Med.-Chir. Trans.*, vol. xxxix); a third by Sir J. Paget (*St. Bartholomew's Hospital Reports*, vol. vi); while a case of a loose body, apparently broken off from one of the menisci, is recorded in the *St. George's Hospital Reports*, vol. ii.

I must now say a word or two concerning the etiology of some of these methods of growth, more especially of the first three. It is well known that in two conditions of joint-disease—viz., in hyarthrosis and in arthritis deformans (a better name for chronic rheumatic arthritis), a peculiar condition of synovial membrane is generally, if not always, present; one in which the inner surface, by enormous hypertrophy of the fringes, becomes in part—sometimes over its whole surface—shaggy and rough. This dendritic condition is generally accompanied by enlargement of the ends of the processes, one or more of which will be also hardened and cartilaginous, whence may arise a multiple development of false bodies, like those in the negro's knee on which Mr. Berry operated; or, as happens not unfrequently in hyarthrosis, development of only one or two. In this disease, no further change requiring mention here, save some thickening and great distension of the membrane, is to be observed. But, in arthritis deformans, there will be added metamorphosis of the circumferential joint-tissues; the bones will throw out osteophytes; the subsynovial tissue will harden into plates of cartilage or into bone. Thus in these diseases are types of the first, second, and third method of production in a vastly more extended form; so that not one or two spots only of the joint-tissue, but the whole area thereof, is concerned in the production of abnormal bodies, which therefore appear in numbers, and not singly. Nevertheless, it is easy to perceive that an injury, such as a nip of the synovial membrane or a blow in the immediate neighbourhood of the joint, may be followed by extravasation of a little blood beneath the basement membrane, which will afterwards organise into a false body as above described; or that such excitant may produce inflammation, or simply a hyperæmia and hyperplasia provoking the tissue-changes which have been indicated. A very instructive example was shown by Mr. Shaw (*Pathological Transactions*, vol. vi, p. 328) of a loose body in the centre of which a piece of a needle was found; the needle had probably at the time of its inception only passed in part through the synovial membrane, or did not pierce it at all, but remained in the subsynovial areolar tissue; around this, with or without the previous formation of a blood-clot, hyperæmia and hyperplasia would occur, cartilage would form, and protrusion into the joint would occur as above described.* The case of the sailor which I have detailed also shows the influence which injury may have. Again, Sirus Pirondi mentions (*Revue Méd.*, p. 587, 1861) having seen five cases of loose body all traceable to injuries. The cases, also, of fresh development of one or more such growths after the removal of a first one, points in the same direction, viz., that, in certain constitutions, any injury in the immediate neighbourhood of a joint may lead to the development of a loose body in that joint.

This element of injury so frequently contained in the history of these cases has induced certain surgeons, forgetful how readily hyperæmia and hyperplasia may be thus induced, to argue that most, if not all, loose bodies are but chips from a natural joint-surface. The opinion of one with so large and so successful an experience as Mr. Square of Plymouth is worthy the highest consideration; but he confesses this view to be merely conjectural, and that he has never made any microscopic examination; and, judging from the portraits which he gives the excised bodies (*London Medical Review*, vol. ii), they cannot be identified as forming any part of a normal joint. Mr. Teale, whose views Sir J. Paget (unacquainted with them at the time of writing) has endorsed, tends to teach that portions of cartilage being killed by injury are afterwards discharged into the joint by a process of "quiet necrosis". Klein's case does not, as Sir J. Paget seems to conclude, prove this, but rather, in my opinion, a direct chipping or breaking away of fresh unchanged cartilage.

I have now sketched to you in mere outline the pathology and etiology of this peculiar malady. Unfilled as that outline is, I, believing it correct and true to nature, must leave it here. In my next, I will shortly give the symptoms of the disease, and then, with more detail, the methods, motives, and statistics of operation.

* It is only just to Mr. Shaw to state that this theory of its formation differs from his own. He supposes the needle to have been forced into the articular cartilage, and so have produced an ecchondrosis; but this leaves out of reckoning the pedicle, which he himself describes as a prolongation of the synovial membrane which quite surrounded the body, and which could only have been produced in the manner above described.

PRESENTATION.—Mr. J. Beswick Perrin, M.R.C.S., etc., formerly Demonstrator of Anatomy at King's College, has just been presented with a valuable time-piece by the medical students of Owens College, Manchester, as a mark of their appreciation of his services as demonstrator of anatomy, and a tribute of respect on the occasion of his approaching marriage. Mr. Perrin was deservedly well known and respected at the College of Surgeons, where he had an engagement for some time under Professor Flower in the Museum.