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ORIGINAL COMMUNICATIONS.

ON THE PHYSICAL EXAMINATION OF THE ABDOMEN, IN HEALTH AND DISEASE.

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(Continued from page 97 of last Number.)

EXAMINATION OF THE ABDOMEN BY PALPATION.

[The following introduction to the subject of "Palpation" was inadvertently omitted at the commencement of the paper in the number for February.

LIKE the sight, the touch acquaints us with the form, size, and movements of objects; but it further instructs us with regard to their temperature, surface-feel, consistence, resistance, and weight; and in the case of soft, pliable, and yielding objects, such as the abdomen, the touch reaches beyond the surface, and may feel more or less of all the same properties in the deeper-seated parts. Thus by *palpation*, or *handling*, of the abdomen, we may learn far more than sight can teach us, of the physical properties, and therefore of the healthy or morbid condition, of its internal organs; and the more carefully we analyze these physical properties, and understand their relations to the parts which possess them, the more instructive will be the knowledge which we derive from them.

As to the sight, so also to the touch, the abdomen is made up of its walls and the viscera within them; and the latter being felt through the medium of the former, will be more or less distinct, according to the condition of the abdominal walls. When these are very thick or tense, it may be difficult to feel anything through them: when they are thin, and more especially when they are also flaccid, the condition of the contained parts may be determined with great nicety. The thickness of the walls depends chiefly on the quantity of fat, and where this is very great, palpation can only afford obscure results; the touch must be applied with considerable pressure, to reach beyond this superficial mass. The tension of the walls depends on the tonic contraction

of the abdominal muscles, often increased by voluntary restraint, under the apprehension of pain, or from nervousness; and it may greatly interfere with the examination by rendering the walls too hard to permit anything to be felt through them: but this muscular rigidity may generally be reduced by calming the patient's fears, and by diverting the attention from the region by questions on some other interesting topic regarding the health, whilst the hand is kept applied with a gentle pressure, and softly rubbed over the surface of the abdomen, until the muscles become relaxed, and the examination is properly effected.]

The palpable signs of *air in the peritoneum* are very characteristic. The usual moderately elastic softness of the abdomen is replaced by a tympanitic elasticity, remarkable for its resilient feel, and even on superficial pressure yielding the same light and springy resistance. Effused as air usually is suddenly in consequence of perforation of the alimentary canal, its phenomena may be much masked by the intense pain and other symptoms of severe disturbance which usually accompany that accident, and which, by spasmodic contraction of the abdominal muscles, render palpation difficult. In the absence of such symptoms, which are in themselves pretty significant, the physical diagnosis is easy, as in the following case.

A woman, 50 years of age, was admitted under my care for disease of the abdomen, which I considered malignant. The liver was much enlarged, with nodulated inequalities, and was an object of palpation at every visit. One day, before asking a question, or hearing the daily report, one touch of the epigastrium drew from me the exclamation—"Here's air in the peritoneum!" The region which before had presented the hard uneven resistance of the diseased liver, now felt soft, very elastic, and uniform on its very surface; like, in fact, a thin vulcanized India-rubber air-cushion moderately distended. The peculiarity of the feel, contrasted with the previous condition of the abdomen, made me sure that nothing but an extravasation of air could account for the change; and on further examination, the superficial tympanic sound, with metallic echo on percussion, and the gurgling near the surface at the sides, where liquid mixed with the air, confirmed the first impression. The patient had suffered more than usual pain, but was now easy, and her countenance calm, under an opiate; the pulse was, however, very rapid and thready, and the feet and legs becoming cold. She died in about twelve hours. The air was found in the peritoneum as indicated, occupying the whole front of the abdomen; the liver was large, and studded with cancerous tubera: lying underneath, and attached to it, was a cancerous mass involving the pylorus, duodenum, and transverse colon. The perforation was in the duodenum.

As peritoneal tympany, or pneumo-peritoneum, occurs only in case of perforation of the alimentary canal, its palpable signs as just described, and those of superficial tympanic stroke-sound with metallic tinkling, to be noticed hereafter, become evidences of the occurrence of that mortal accident. But perforation may occur without the extravasation of sufficient air to produce the signs; their absence, therefore, will not disprove the existence of perforation. In the formation

of limited fistulæ in the peritoneum and walls of the abdomen communicating with the intestines, the superficial gurgling or croaking under the pressure of the fingers is a very palpable sign; I have met with it in more than one case. It is more distinct and superficial than the gurgling of reducible herniæ.

PALPABLE SIGNS OF SOLID INDURATIONS AND ENLARGEMENTS
IN THE ABDOMEN.

Solid bodies of flattened shape are sometimes met with in the walls of the abdomen, underneath the integuments, or between the abdominal muscles and peritoneum. In the former situation, they can be felt to move freely on the muscles, even when these are tightened. When attached to the abdominal peritoneum, they may be felt to remain fixed during the movements of respiration, which would carry them a little upwards and downwards, were they connected with the abdominal viscera. In making observations on these movements, the umbilicus, linea alba, or some other conspicuous object on the walls, will assist the eye or the hand in seeing and feeling what is attached to the walls, and what moves with the viscera underneath. Indurated patches in the situations now alluded to, I have known both of a cacoplastic or low exudatory, and of a malignant kind; the latter being commonly distinguished by its penetrating through several textures, and often presenting nodular irregularities.

Laminar indurations of the omentum, or intestinal peritoneum, may be felt by careful palpation when the walls are relaxed, practised both perpendicularly, and from side to side. Gentle perpendicular pressure detects the greater resistance offered by the induration, as compared with adjoining spots; but delicate lateral palpation may even detect the edges of the induration, and determine its thickness, as well as its superficial character. The absence of resistance on firm pressure, and of dulness on percussion, distinguishes these superficial indurations from more solid tumours.

A thickened state of the coats of the intestines is of much commoner occurrence than is generally supposed; and in most instances of chronic diarrhœa it can be detected by careful palpation in the region of the cæcum, or of the ascending or the sigmoid colon. For this examination the patient should be in bed, lying flat on the back, with the muscles quite relaxed; the abdomen is then to be felt by gentle steady pressure with the flat fingers, gradually slid to successive parts; the greater superficial resistance, in one or more of the regions just mentioned, will then become very obvious; and it is sometimes, but not always, accompanied by tenderness on deeper pressure in the same spot. Although feeling thus hard to superficial pressure, it yields with some resistance to firmer pressure, and gives a tympanitic sound on percussion. This thickening of the large intestine apparently results from a low inflammation of a chronic or subacute kind, and is usually attended by occasional attacks of diarrhœa, or even slight dysentery, sometimes alternated with constipation. A married lady, æt. 30, had for more than twelve months been liable to attacks of severe diarrhœa, which greatly reduced the flesh and strength; the catamenia became irregular and defective; and the whole constitutional powers were failing. Travelling on the continent had been

tried with temporary benefit; but the attacks continued to recur; and the bowels being confined in the intervals, and the appetite bad, no progress was made towards recovery. In this case I found distinct fulness, with superficial resistance, from the right iliac to the hypochondriac region; and an irregular but moveable resistance was also felt in the left iliac fossa. All this tract was tender on pressure, even when diarrhoea was absent. Counter-irritation over the course of the colon, first by a blister, and subsequently by solution of iodine, using, at the same time, an India-rubber belt, lined with soft wool, succeeded in removing the thickening of the bowel. After a month's treatment, there was no return of diarrhoea, and the health has been uniformly good ever since, a period of five years. In another case, that of a married lady, æt. about 36, severe abdominal irritation, with dysenteric diarrhoea, was brought on by too frequently bathing in the sea. The symptoms were repeatedly relieved by astringents, farinaceous diet, and confinement to bed; but they always recurred so soon as she attempted to get up and return to the usual diet. Being summoned to Ramsgate to see her, I found, on examination of the abdomen, a very palpable hardness and fulness along the whole tract of the colon, from the cæcum to the sigmoid flexure inclusive; and it was only after repeated blistering, and counter-irritation with iodine over these parts, whilst the bowels were regulated by small doses of sulphate of copper and narcotic extracts, with occasional mild alterative aperients, that a permanent cure was effected. In many cases of chronic diarrhoea and dysentery I have detected the same physical signs of thickening of the large intestine, and have by them been guided to the same successful mode of treatment.

In these cases the thickening of the intestine is probably the result of a low inflammation, sometimes excited by the injudicious administration of astringents to stop a diarrhoea. The thickened bowel has an irritable mucous membrane, whilst the regular and efficient contraction of its muscular coat is impeded by the deposit, which consists partly of thickened epithelium, and partly of exudatory matter under the mucous membrane. Hence, too, the combination, or alternation of irritative diarrhoea with costiveness and retention of scybala. Practitioners are apt to regard the scybala as the true cause of the irritation and diarrhoea; and doubtless they may contribute to keep it up: but their repeated formation and retention are really due to the altered structure and impeded function of the intestine, and are to be prevented only when its motory and secreting powers are properly restored.

In feeling for these intestinal thickenings, some variation of manipulation is necessary in different parts of the abdomen. The cæcum is usually quite superficial, often forming a fulness or prominence in the right iliac region, and extending more or less towards the linea alba and upwards. Its thickening is detected by gentle pressure meeting with more resistance and hardness than is felt in the hypogastric or left iliac regions, whilst the sound on percussion is still hollow, although often less so than usual. The ascending and transverse parts of the colon usually lie deeper; and, if within reach, require more pressure to test their resistance; which, if increased, is to be distinguished from that of an enlarged liver by being more rounded, and with a hollow stroke-sound. The sigmoid flexure of the colon

lies still deeper in the left iliac fossa; and, if thickened, is to be felt from the left side, by the flat fingers gradually pressed with a rotating motion and increasing firmness; it is usually contracted, contains little or no air, and feels like a large curved cord, in some degree moveable, in the hollow of the ilium.

The thickening of the intestine, hitherto described, is supposed to be of inflammatory origin; but it may save repetition to mention here, that *malignant disease* may grow in the same situations, present somewhat of the same signs, and be detected by similar manipulation. The diagnosis of malignant formations may generally be established, both by reference to the constitutional symptoms, and by peculiarities in the local disease. On the former we need not dwell at present. The peculiarities of malignant growths, as distinguished from inflammatory deposits, consist in their assuming more the form of circumscribed tumours; both from their being developed in more nodular masses, and from their disposition to penetrate and amass together contiguous tissues and organs, and further to involve them in their ulterior processes of irritation, contraction, ulceration, etc. Even diffused malignant growths on the intestines may therefore generally be distinguished from simple inflammatory thickening by their greater irregularity of surface, being more nodulated and circumscribed, and often connected with a deeper-seated tumour, which affords much more than the superficial resistance of thickened intestines.¹

Malignant disease of the stomach, when affecting the pyloric end, and often involving a portion of the duodenum, colon, and pancreas, in most cases forms a palpable tumour, to be felt on pressing more or less deeply to the right of the epigastrium. Much tact and tenderness are often required to enable the hand to reach deep enough to feel the tumour; and a favourable opportunity should be taken when the bowels are empty, and when there is the least amount of sickness or tendency to pain. The pressure should be rotatory and gradual, in the direction of the spine. The tumour, when felt, is rarely quite dull on percussion, and often pulsates, from the motion of the subjacent aorta; but the pulse is in one direction only, and not diastolic, or enlarging at each beat, as in the case of aneurism. The tumour is easily distinguished from the liver by its being deeper seated; or if it be larger and approach the surface, by the tympanitic interval between it and the mass of the liver, the signs of which belong to the

¹ The following case is uncommon, but I mention it as both exceptional, and yet illustrative of the importance of physical examination. An unmarried lady, aged 26, who had always been delicate, came under my care for gastritic dyspepsia, which resisted all the usual measures. Intolerance of all nutritious food, and consequent wasting, ensued, and subsequently obstinate constipation and great distention of the intestines. An eminent physician who was called into consultation, considered the case hysterical, and advised the persevering use of galbanum and colocynth purges, aided by the rue enema. I did not concur in that opinion; because by careful palpation I had distinctly felt a thickening of a portion of the intestines. I supposed this thickening to be the result of chronic inflammation, and apprehended ulceration and perforation should the obstruction continue. Perforation and speedy death did ensue; and examination discovered very extensive thickening of both stomach and ileum; but the thickening was from malignant disease, which in so young a person I did not anticipate. The ileocaecal valve was almost closed by stricture, and the intestine above was ulcerated and perforated.

lower right ribs, and upper part of the epigastrium. Scirrhus of the cardiac end of the stomach is less within the reach of palpation, as this portion lies both deeper and more under the ribs. I cannot now call to my recollection a case in which I have been able to feel the tumour where it was confined to this end of the stomach. On the other hand, I can scarcely remember one case of malignant disease in other parts of the stomach and intestines, where, sooner or later, a tumour or induration has not been felt, so as to serve to confirm a diagnosis, which is often too evident from the general symptoms.

When malignant disease causes obstruction of the intestines, those portions above the impediment may become enormously distended, and their outline may often be traced by palpation, as in cases of fæculent accumulation; but this tends to put out of reach the obstructing lesion, which is buried in the accumulated mass. If the stricture be in the rectum or sigmoid flexure, its presence may sometimes be inferred by the obstacle opposed to a finger, to a bougie, or to the contents of an enema introduced by the rectum.

Solid massive tumours in the abdomen, as those of a much enlarged liver or spleen, present certain palpable characters in common, which should be noticed before we advert to the individual varieties. In proportion to the mass which is in contact with the walls of the abdomen, an enlarged liver or spleen will present the resistance and weight of a solid body, soft or hard, as the case may be. When soft, it may not feel much more resisting and inelastic than the abdomen in general, especially if felt only in points with the ends of the fingers; but if pressed more in mass with the flat of the fingers, and more particularly if the weight of the tumour be brought to bear against them by a leaning forward or prone posture, the feel of the solid enlargement, although soft, becomes quite palpable, and may be contrasted with that of other parts of the abdomen containing intestines only. Again, a slight abrupt impulse given to one point of a soft solid may cause a kind of undulatory movement through it, which might be mistaken for fluctuation; but besides its wanting the soft and gravitating character of liquid motion, a distinction may be made by giving the body a flat push on one side, which will be communicated to the hand on the opposite side with the impulse peculiar to a solid body. In fact, by a little management, we may generally contrive so to handle and feel the tumour, as to infer from its consistence, resistance, weight, and shape, the nature of its material.

The test is easier when the tumour is harder and more dense, because then its greater resistance and weight are more obvious, and so strikingly contrast with those of the abdomen in general, that it is easy to feel the outline of the mass, and trace its precise shape and position. Its continuity, likewise, from front to back, or from side to side, can be determined by finding that a push or impulse is transferred by it, which it would not be, if fluid or air intervened.

In many such cases the weight of this tumour causes some variation in its position with change of posture; and we may avail ourselves of this to ascertain its form and dimensions, and its relation to the other contents of the abdomen. This is especially needful in the common combination of solid tumours with liquid effusion; the liquid, if

abundant, putting the tumour out of reach, until, by its greater weight, it is brought to bear down against the walls.

The *liver* may enlarge in any or in every direction, upwards, downwards, and outwards, in front, at the side, and behind. Except when upwards only, a very rare case, the enlargement may be detected by palpation, as well as by percussion and inspection. The outward bulge is more obvious to sight than to touch; but if at all considerable, it may readily be felt on passing the hand from above downwards, from the middle regions of the chest to the upper parts of the abdomen, making a comparison of the right with the left sides. The bulge of liver enlarged laterally then meets the hand in a way that can hardly escape notice, and if found to be dull on percussion, and resisting pressure, it may fairly be diagnosticated as such in cases where no opportunity is given for inspection. The most common mode of enlargement, however, is downwards, with more or less general fulness; and as this brings the organ below the margin of the ribs under the pliant walls of the abdomen, it becomes the especial object of examination by palpation. The amount and kind of enlargement will determine the degree of facility in detecting it. If the liver do not extend beyond an inch or so below the ribs, it may not be felt at all; for it must be remembered that its margin being thin, it may oppose to the fingers no palpable resistance, especially if the walls of the abdomen are at all thick. But if the organ reaches two or three inches below, even without any material thickening or increased density, the fingers can scarcely fail to feel its resistance, particularly when aided by comparing the pliancy of the abdomen in the left hypochondrium. When the liver is still more enlarged, its margin usually becomes thickened as well; and besides the very distinct resistance which its anterior surface offers to the fingers, the lower margin may now be felt as a distinct ridge by the fingers pressed into the abdomen below it, and then moved rather briskly upwards. For the examination of the liver, the sitting, standing, or leaning forward posture, answers best; the observer placing himself either in front, at the side, or behind, according as he can best apply his hands to the abdomen.

It is in the case of induration with enlargement, that disease of the liver is most obvious to palpation. There is then no need of comparison with other parts of the abdomen; the hard substance of the organ forming a tangible object, the surface, outline, and irregularities of which may be independently explored in all their details. In such cases we can often determine with great nicety whether the substance is granular or uniform; whether the edge retains its wedge-shape, or has become thick and rounded by deposit and the contractile process. We may often feel the under surface of the organ, and trace its inequalities, with the position and state of the gall-bladder.¹ Nor are these

¹ The following case is not less interesting in its diagnostic than in its pathological and therapeutic relations.

A dignitary of the Church, of sedentary habits, had for years been subject to attacks of severe pain in the hypochondria, attended with obstructed flow of bile, and generally followed by more or less jaundice. For some time these attacks were considered and treated as arising from gall-stones; but they had latterly become so frequent and severe, and the strength and flesh had been so much reduced, that great fears were entertained that there was malignant disease pre-

nice points of diagnosis matters of pathological or speculative interest only. They have a direct bearing on the prognosis of the case, and are by no means useless in guiding the treatment. The soft enlargements of the liver are in many instances tractable under remedial measures, especially those which increase and liquefy the secretion of the organ; and the transition to the state of induration is not so abrupt or universal as to preclude similar means from being highly useful, even where considerable hardening of the tissue has taken place; the salutary effect being generally attended by a palpable diminution of the hardness, as well as by a reduction of the dropsy, jaundice, and other consequences of the obstruction. In these more tractable cases of indurated liver, we do not feel the rugged surface and granular irregularities which are present in the more formidable kinds of cirrhosis; nor do we find the proofs of failure of function and degeneration of structures in the general symptoms—such as progressively failing appetite and strength; increasing jaundice and dropsy, although bile is excreted, and urine is not greatly deficient; gasping breathlessness, or orthopnoea; fluttering or rapid pulse; with the ominous arcus senilis, etc.—indications of the worst kind, which leave no hope of real recovery.

The alteration in the shape of the edge of the liver, from wedge-shaped to rounded, often occasions a displacement of the organ from its natural position, which it is important to notice in reference to its physical signs. So long as the liver retains its proper shape, its anterior surface remains in close contact with the abdominal walls, unless a liquid effusion happens to separate them, which is clearly evinced by the sign of *diahydric*¹ succussion before described. But when the lower margin becomes rounded, portions of intestines are apt to slip up between the walls and the liver, and to separate its lower

sent. On my first seeing him, he was much emaciated; the liver did not reach below the margin of the ribs, and there was no feeling of any tumour or hardness underneath. One spot, just below the right ribs, two inches from the ensiform cartilage, was pointed out as being always tender, and the seat of the most intense pain during the attacks; then, I was assured, it became the seat of a hard swelling. On one occasion only I felt this swelling; it was then soft and of a rounded shape, but the attack was on the decline. This seemed to me so much like a distended gall-bladder, and the whole case so like one of biliary concrétion, that I caused a diligent search to be made in the evacuations. In a few days a gall-stone was found, consisting as usual of cholesterin. The diagnosis being thus clearly made out, and the usual means of treatment having failed, it occurred to me that the cod-liver oil, which I was then giving extensively to phthisical and cachectic patients, might prove a means of dissolving the concrete biliary matter, and of promoting a better secretion in the liver. It was given, and answered perfectly; only one slight attack happening after its use; appetite, flesh, and strength, were gradually restored, and the gentleman has been constantly engaged in his ecclesiastical duties for nearly three years. But what is worthy of remark is, that under this treatment the liver enlarged in size, so as to reach nearly two inches below the margin of the ribs, and the tender spot descended with it, and in the single slight attack which did occur, it formed a palpable fulness just two inches below its former position. In a few weeks the tenderness was removed. This gentleman consulted me for a slight ailment this day (Feb. 3). I found the liver still reaching between one and two inches below the margin of the ribs, but quite free from all tenderness or swelling.

¹ I propose this term (from *dia*, through, and *hudōr*, water,) to express the characteristic sign of *striking through liquid*, noticed in this paper on the Palpable Signs of Liquid.

part more or less from them. The liver thus becomes partially enveloped in intestines, and can no longer be felt distinctly. The gurgling of the intervening bowel may often be felt on pressure; and the prone position may cause the weight of the liver to compress it for a time, but it is not easy to displace the intestine when the shape of the liver is thus altered; and it is necessary to be aware of the fact, or we may consider the liver to be much smaller than it really is.

It is not necessary to dwell on the varieties of extent and form of enlargement of the liver determinable by palpation; but there is one which is so peculiarly diagnosticated by it as to deserve mention. I allude to dimpled cancerous tubera in the liver. The shape of these tumours, rounded, flattened, and umbilicated, or with central depression, is so characteristic, and they so frequently rise from the anterior surface of the enlarged organ, that in as many as five or six cases I have been able to feel them through the walls during life, and announce their existence, and the consequently unfavourable prognosis. Two of these cases, modelled in wax, are preserved in the museum at University College.

The *spleen*, when only moderately enlarged, lies deeper than the liver, and with the stomach in front of it; therefore, in feeling for it, below the margin of the left ribs, we must use deeper palpation, aiming the fingers obliquely upwards and to the left, instead of the superficial direct perpendicular pressure practised in testing the right hypochondrium for the liver. Its peculiarity of shape also is equally apparent; for so soon as it is sufficiently enlarged to come within the reach of the fingers, it offers to them the resistance of a rounded and somewhat moveable body, meeting the fingers and slipping aside under their pressure. With a further amount of enlargement, the spleen reaches lower under the ribs and nearer to the surface; and it then becomes more easily palpable, both from its more accessible position, and from its bulk and weight opposing a more decided resistance to the fingers. In its greatest degrees of hypertrophy, the spleen extends more or less down the whole left side of the abdomen, approaching the umbilicus in front, and reaching nearly or quite to the left ilium. When thus greatly enlarged, it is in contact with the walls of the abdomen under the whole margin of the left ribs from the spine to the epigastrium, or near it; it occupies the whole lumbar, hypochondriac, and iliac regions of the left side, and may in parts extend even across the mesial line. To all these regions it gives the peculiar resistance of a heavy solid body; compact, and transmitting a flat, heavy impulse, or push, through its mass; but not often hard; usually smooth and even on all surfaces but that which forms its right boundary, on which rounded prominences and intervening indentations can be felt. These correspond with the internal margin or pelvis of the spleen, into which it receives its vessels. To the right lie the intestines, which, by their elastic feel and hollow sound, contrast well with the dead heavy mass occupying the left of the abdomen, and sometimes causing considerable enlargement of its whole bulk.

These physical characters are in most instances quite sufficient to identify an enlarged spleen; but they are further to be confirmed by the results of percussion, and by the general symptoms of pallid cachexia, which commonly accompany great enlargements of the

spleen. I must not omit to mention that the spleen, not being firmly sustained in its position like the liver or kidneys, may somewhat change its position according to the posture; and this, although it may prove an additional means of diagnosis, has sometimes been a source of error. In common with all the medical men who examined the case, I once mistook a much enlarged spleen for an ovarian tumour. It occupied the lower half of the abdomen; its upper margin reaching from the right iliac obliquely to the left lumbar region; and the rounded prominences of the upper surface were supposed to be cysts of an ovarian tumour. They proved to be the protuberances of the vascular or inner surface of the spleen, which had fallen completely out of its place, so that this surface now lay uppermost, whilst that which usually occupies the side rested on the pelvis.

The kidneys, from their deep position in the abdomen, might seem to be beyond the reach of palpation; but, except in cases of considerable thickness of the walls of the abdomen, or of their distension by the bulky contents of the intestines, or by effusion in the peritoneum, a little contrivance and tact will generally enable the hand to feel these glands sufficiently to detect any material enlargement, as well as to test their degree of sensibility. For this purpose it is necessary to displace the superjacent intestines; and this is to be accomplished by rotatory pressure, gradually, but steadily increased, until the hand sinks so deep in the abdomen as to feel its posterior walls. The kidneys occupy the most prominent part of these, on either side of the spine, beneath the lowest bend of the ribs in front, a little above the line of the umbilicus, and from two to four inches to the right or left of it. For making this examination, the patient should lie flat on the back, with the limbs straight, but the muscles all as much relaxed as possible. The observer should be on the side opposite to that of the kidney that he is going to examine; and he should change sides to feel for the other. The right hand is then to be applied below the ribs, the fingers pressed flatly with a rotatory movement towards the kidneys; the steadiness of the pressure being maintained, if necessary, by the left hand applied on the right. The right fingers then, in their rotatory pressure, glance over the interior lumbar region; and the lower half of each kidney may usually be felt as only a slight flattened convexity in their natural state; but, when enlarged, forming a palpable prominence of rounded form, and often painful on pressure, the pain being sometimes referred to the loin, and the course of the ureter, as well as to the site of the kidney itself. In effecting this examination, it is often necessary to take off the patient's attention by conversation, to prevent those muscular efforts in the chest and abdomen, which are excited by nervousness or dread of pain, and which greatly interfere with the success of the exploration. Hence very timid or sensitive persons can rarely be examined satisfactorily in this way. The left kidney is more easily reached than the right, on account of the greater resistance opposed to deep palpation on the right side by the liver. The right, however, lies a little lower in the abdomen; and this brings it, in part, from under the last ribs in the right lumbar region, which is a spot in which both the fulness and tenderness of an enlarged right kidney may often be detected.

The diagnosis of moderate enlargement, with tenderness of the

kidney, through deep palpation, is of great importance in relation to practical measures. Often, guided by it, have I succeeded in curing acute albuminuria, and in relieving that of a chronic character, by means of cupping, blisters to the loins, and hydragogue purgatives; and in many instances the reduction of the swelling of the kidney, with the entire disappearance of albumen and of granular cell-casts of the tubuli from the urine, and the restoration of the proper amount of excrementitious matter, has proved that the disease was merely congestive, or subinflammatory, and the cure has been permanent. In other instances the tenderness has subsided, but not the enlargement; and the urine, although improved, has given proofs of a remaining structural disease, in its never recovering a healthy standard in quantity, specific gravity, and freedom from albumen.

Very bulky enlargements of the kidneys are more readily detected by palpation, both in front and in the lumbar region; and their position, shape, and immobility, pretty well serve to distinguish them from other tumours. Cysts in the kidney, and the expansion of the gland by the purulent fluid of chronic pyelitis (formerly mistaken for abscess), may be felt as a rounded, soft, heavy, fluctuating tumour, in the lumbar and iliac regions. Malignant disease of the kidney is usually attended with considerable enlargement, which, from its irregular form, and from the amount of blood commonly present in the urine, in conjunction with the general history and other symptoms, will generally serve for the diagnosis.

In several instances, I have detected, by deep palpation, *enlargement and thickening of a ureter*, commonly in connexion with chronic pyelitis. It is felt as a hard cord-like body, deep in the iliac region, more or less moveable, and transmitting the pulsation of the iliac artery at the point at which it crosses it. The enlarged ureter is tender on pressure, and the pain shoots upwards to the loin, and downwards to the testicle of the same side.

Enlargement and induration of the mesenteric glands may be supposed to be a fit object for diagnosis by palpation, and by careful manipulation it may generally be detected; but not so readily as might be anticipated; for with it there often coexists so much tympanitic distension of the abdomen, as to prevent the hand from reaching the deeper parts. But by choosing times when the bowels have been well cleared, and by using firm flat palpation, with some rotatory movement, followed by an increased pressure towards the back, the nodular glandular tumours may often be discovered.

Further illustrations of the utility of palpation might be given in cases of solid ovarian and uterine tumours, of pregnancy, of psoas abscess, of malignant disease of the bladder, of pelvic abscess, etc., etc.; but this part of the subject has already exceeded my intended limits; and quite enough has been given to illustrate the principles of manual examination of the abdomen. In my next communication, the acoustic signs of the abdomen will be considered.

(To be continued.)