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COMMON MISTAKES IN THE DIAGNOSIS AND TREATMENT OF ACUTE ABSCESS.*

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THE subject I have chosen for my lecture may possibly be regarded as too elementary, but will be allowed to be of general interest, for it must fall to the lot of every doctor to have to diagnose and treat an acute abscess at some time in his career. I hope to show, however, that knowledge on this subject is by no means so thorough as it should be, and though the pathological teaching of to-day may be excellent there remain many gaps in the clinical side of the student's knowledge of acute abscess.

An acute abscess is the result of circumscribed suppuration, which as Paget pointed out many years ago, has its most usual seat in areolar tissue. The subject is a big one and to-day I shall not consider more than a limited field. I shall omit any reference to acute abscess in bones or joints, and cannot even touch on the varieties of acute abscess within the pleural and peritoneal cavities; nor shall I take up the question of acute infection of the fingers, on which subject Kanavel has written his masterly treatise. We are left, then, to consider the common abscesses which may develop in the soft connective or areolar tissue in various parts of the body. These are most commonly the result of the reaction of the tissues to the attacks of the staphylococcus or the streptococcus. The main

features of that reaction you all know. Dilatation of the vessels, alteration in the flow of blood, escape of fluid from the vessels, emigration of leucocytes, liquefaction of local tissues, all precede the formation of the abscess. At the same time the tissues close to the infective focus provide a barrier, soft and oedematous at first, but harder and more organised later. These changes are constant in circumscribed suppuration, but the clinical manifestation of the changes are variable. What are the signs of inflammation? Celsus mentioned *rubor, calor, dolor, tumor*, and to these we may add fever and loss of function. But what is not sufficiently insisted upon is that in actual practice these signs are not all constant. Sir James Paget made this clear in his classical lectures on pathology. After enumerating the signs of inflammation he continued: "One or more of these may, in many cases, be absent or not appreciable; there is not one of them which may not be observed in morbid conditions that have nothing else in common with inflammation . . . nevertheless these signs of inflammation are in practice very serviceable; there is no disease other than an inflammation in which they all concur, or in which more than half of them are for many days persistent." These variations depend largely upon the position of the inflammatory focus and the anatomical configuration of the part. Though they are mentioned in the text-books I do not think sufficient emphasis is paid to these variations since I have seen so many mistakes made through failure to appreciate the varying signs of acute inflammation.

When an abscess has formed there is sometimes added the sign of fluctuation. A great deal too much emphasis is laid on this sign. True, superficial abscesses will frequently give the sensation of fluid to the palpating fingers, but the majority of serious abscesses arise more deeply and do not enable fluctuation to be elicited till a very late

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stage of the condition. I find it difficult to induce the average student to diagnose abscess without fluctuation and the same statement holds good in the case of many practitioners. Yet it is almost as reasonable to expect fluctuation in the case of an empyema as in an abscess originating under the deep cervical fascia.

Let us now take in turn the symptoms which accompany acute abscess and consider how they may vary.

Pain is a constant symptom, but varies greatly in intensity, according to the nerve-supply of the part affected and the tension permitted by the anatomical structures. Cohnheim, in 1877, put the matter better than anyone else; he wrote: "We now come to the third point—the pain, dolor; since this is dependent on the dragging and pressure to which the sensory nerves of an inflamed part are exposed through the over-filled vessels, but especially through the exudation, the degree and severity of the pain will be determined: (1) by the richness of the part in question in sensory nerves; (2) by the distensibility of the organ—i.e., on whether or not the exudation when poured out is itself subjected to a high pressure; and (3) by the amount of the exudation. In organs which are poor in sensory nerves, as the kidneys and many mucous membranes, even violent inflammations may run an almost painless course, while in the serous membranes which are plentifully supplied with sensory nerves the inflammatory dolor is usually very severe. On the other hand, phlegmonous inflammations are most painful when occurring beneath fasciæ; and you will all have experienced what agony is occasioned by inflammation under the finger-nail. Moreover, the pain frequently travels along the course of the sensory nerves and is radiated to other branches." The observations of the famous pathologist are borne out by clinical experience. The pain of an acute abscess is extremely variable. Though at the initial stage of inflammation there may be acute pain, the later stages of abscess-formation may only give rise to a soreness and slight aching in parts where the areolar tissue is lax and there is plenty of opportunity for fluid accumulation without tension. This is perhaps best seen in perinephric abscesses, but the same holds good of many other parts, such as the axilla, breast, and submaxillary region. Though spontaneous pain may sometimes be slight, tenderness is always present. Even in deep abscesses there is almost always some spot which will give rise to pain on pressure, though occasionally the pressure may have to be firm to elicit pain.

Swelling is always present, but not always visible. The principle has been enunciated by Cohnheim and confirmed by every clinician that "the product of inflammation accumulates wherever it finds the least amount of resistance." Where the resistance is great the swelling may be small in amount or almost absent. When the tissues are lax the swelling may be great. But even

considerable swelling may be masked by thick muscles as around the shoulder or buttock. Where, as in the case of an ischio-rectal abscess, there is dense bony and fascial wall preventing swelling, then the exudation will bulge towards the rectum and escape observation unless the observer puts the finger within the rectum. In the loose peri-anal tissue an abscess may enlarge to an enormous size before swelling becomes apparent.

Increased heat is present, but it is not easily detectable in the case of deep abscesses, whilst in superficial abscesses the heat diminishes as the intensity of the inflammation subsides.

Redness is only present when the abscess is superficial or when a deep abscess approaches the surface. With a deep abscess, however, there may be a purplish discoloration of the skin due to venous congestion. In the majority of cases of abscess redness is absent.

There is nearly always some *loss of function* with an acute abscess, but this is often surprisingly slight. A man with an axillary abscess can often move his arm fairly well though it causes him pain; a patient with an appendix-abscess can, and often does, walk to hospital, whilst a lad with a large submaxillary abscess does not always let that interfere with his taking of food. The general symptoms accompanying abscess should not be omitted. There is usually fever varying from 100° to 102° F. during the stage of formation of the abscess. When the pus becomes localised and encapsuled fever may be absent.

I have referred above to the fallacy of expecting fluctuation in the majority of abscesses. What is much more important is the eliciting of definite oedema of the skin and subcutaneous tissues—the boggiess which is often the superficial manifestation of an abscess deeper in the tissues. It is high time that fluctuation should be regarded as a late sign of abscess and one which in the case of a deep abscess signifies some neglect either on the part of patient or doctor. I would summarise this section by stating that though all the classical signs are present with an acute superficial abscess, yet redness, fluctuation, increased heat and often swelling are not observable with a deep abscess till a late stage.

I wish now to consider specifically those mistakes in diagnosis and treatment which call for comment. We will first take those general conditions which may be mistaken for abscess and then go on to abscesses in various parts of the body.

Two streptococcal infections may be mistaken for abscess by the unwary—they are *erysipelas* and *cellulitis* or *cellulo-cutaneous erysipelas*. Cellulitis of staphylococcal origin is generally localised with an area of circumscribed suppuration, but this is not the usual sequence of a streptococcal infection. The diagnosis must be made since surgical measures are not needed in erysipelas and not always in streptococcal cellulitis. As a rule in both these conditions there is a large area of

superficial redness which spreads rapidly, but is not so tender as an acutely forming superficial abscess. In erysipelas there may be the characteristic blebs of serum and sometimes not; by no means always there is the raised infiltrated border zone of the advancing infection. In both these streptococcal infections the general symptoms of fever, malaise, and weakness are much greater than in cases of localising abscess. If the acute cellulitic infection is overcome small local abscess may be formed, but present no difficulty in diagnosis since they are superficial.

Occasionally a breaking down carcinoma may be mistaken for an acute abscess. I have known this happen more than once in the breast. There may be redness, heat, fluctuation, and swelling with a carcinoma, but pain and fever are usually absent, and a careful history of the case and examination of the whole swelling should easily enable diagnosis to be made. A similar but converse difficulty of diagnosis may occur when an abscess is developing in the breast of a lactating woman. It is well known that a carcinoma of the breast in a pregnant or lactating woman may develop with great rapidity. Such a carcinoma is very cellular and soft, may give rise to pain, and cause real doubts as to its nature. Such a cancer may be mistaken for abscess and vice versa. As Fitzwilliams says: "In such an acute cancer the breast becomes reddened, not heavy and tender, so that the observer is usually deceived as to the real nature of the trouble, for all the symptoms point rather to the formation of an acute or a subacute mastitis with probable suppuration. The organ being soft, a sense of true fluctuation is difficult to be certain of. Treatment is usually applied with the idea that suppuration is about to occur. There may be some elevation of the temperature. Small areas of necrosis may appear and softening may take place here and there, with the formation of what look like small abscesses, but which are probably necrotic areas of growth. With the redness of the skin, elevation of the temperature, the tenderness and the pain, and often the recent pregnancy it is no wonder that many of these cases are treated and even operated upon under the impression that an abscess is forming."

The converse mistake—i.e., the simulation of a cancer by an abscess of the breast—I have known on three occasions. In these cases there was doubt for some days between the two conditions, but the signs of abscess ultimately became clearer and the pus was evacuated. I have known a secondary deposit of cancer in the skin of the back simulate very closely a suppurating sebaceous cyst and cause the doctor to make an incision into it. The presence of a polymorphonuclear leucocytosis should help to distinguish abscess from cancer.

Sarcomata are in the course of their development often accompanied by pain and fever and the skin frequently becomes red and congested, but there is seldom any simulation of abscess. However,

mistakes do occur, and a surgical friend of mine has related to me how he was called to the country to a patient supposed to be suffering from a large sarcoma of the chest wall which proved to be a very large abscess. Usually, however, the irregularity of outline of even an early sarcoma is sufficient to distinguish from abscess.

A leaking aneurysm has on several occasions been disastrously mistaken for abscess. This is most likely to occur in the axilla, base of the neck, or popliteal space. Aneurysms are not so common as they used to be—thanks to better treatment of syphilis—but in any case of doubt it is better to X ray, and, if no X rays are available, aspirate with a small needle before putting in a knife.

A tense hæmatoma may cause swelling, pain, fever, tenderness or fluctuation, thereby simulating abscess. But there is little or no oedema of the tissues round the fluctuant area, and an exploration by needle will soon determine the nature of the swelling. It must not be forgotten that hæmatomata are prone to suppurate.

MISTAKES IN DIAGNOSIS OF PARTICULAR ABSCESSES.

It is clear that one can but touch on a few of the more important abscesses in a short lecture. I have selected those which are either common or important because commonly misdiagnosed or treated inadequately.

Ischiorectal Abscess.

This abscess needs mention for all three reasons enumerated above. It is very common, often overlooked till too late, and frequently badly treated. The symptoms are throbbing pain near the anus, pain which is worse on defæcation or sitting down, and sometimes on walking. Why, then, is the condition not diagnosed early? Because pain and fever are usually the only two symptoms obvious at first; swelling is only detectable by the finger inserted into the rectum and redness seldom appears, and if it does develop it is only at a late stage. Recollect the anatomical configuration of the parts, the hard outer boundary of the space formed by the ischium covered by the obturator internus, the dense fascia forming the floor of the triangle, the yielding inner boundary formed by the anal wall and the visceral part of the pelvic fascia which permits a certain amount of "give" though it prevents the extension of the abscess into the pelvis. It is not to be expected that any outward sign of the abscess should be visible. But several ounces of pus may collect in this space before the thinner rectal wall gives way and allows the escape of the matter through the anus. By failure to diagnose such an abscess early an internal fistula results and much after-trouble ensues. The rule to observe is to examine the rectum digitally in every case of discomfort in the anal region, with the possible single exception of a fissure which can be seen by everting the anal margins. A finger in the rectum can often detect an abscess which

may be on the point of bursting into the anal canal and yet gives no external sign of its presence.

In the treatment of an ischiorectal abscess, the important point is to effect efficient drainage till the abscess has healed from the bottom. This is not quite so easy as might be imagined. A free crucial incision may be made through the skin into the abscess cavity, but there is a great tendency for the fascial and skin layers to unite before the deeper parts have filled up. The abscess may then re-collect. Lockhart-Mummery recommends the removal of a circle of skin over the abscess. At any rate, the skin at the corners of the crucial incision should be cut away, and every care taken in after-treatment that the abscess heals from the bottom.

We will next take the important subject of mammary abscesses. You are well aware that these hardly ever occur except in the actively functioning breast. Over-fullness of the breast is probably a predisposing factor to abscess, and by gentle massage and the use of the breast pump inflammatory symptoms may sometimes be caused to subside. But the practitioner should beware of treating too lightly the throbbing and heavy feeling accompanied by local tenderness which presages an abscess. If such symptoms continue for more than two or three days there will probably be some local œdema over the sector of the breast involved; evening temperature will also probably be present. In such cases it is unwise to wait for redness of the skin, and foolish in the extreme to expect fluctuation. A radiating incision should be made in the involved sector, and a director inserted to make sure as to the presence of pus. If this is not done, there is a great tendency for the abscess to burrow throughout the substance of the breast until in a neglected case the breast may be almost a bag of pus. When the suppuration starts in the deepest parts of the centre of the breast there may be very slight superficial evidence of its presence, but there will be a throbbing pain of a dull nature, tenderness on deep pressure, and perhaps a certain amount of brawniness in the parts round the nipple. I remember one such case in which I asked the house surgeon to open the abscess, but the look on her face showed me she did not believe there was an abscess present, though an incision showed an abscess two or three inches deep to the nipple. Of course, if such an abscess were nearer the periphery it could be opened by an incision at the border of the breast.

A breast abscess is one of the most serious of the common abscesses with which a practitioner has to deal, and I wish to emphasise the importance of allowing an exit for pus in this position at the very earliest possible moment.

Let us now take the most common of all abscesses, that situated in the axilla. Infection of the hand is very common. The glands in the axilla are frequently secondarily infected, and

often suppurate some time after the infection of the fingers has ceased. In the case of any tender lump in the axilla, the upper extremities should be carefully searched for any recent sign of infection. An axillary abscess often develops insidiously. The pain, which is annoying at first, may diminish considerably, and leave a tender lump. It is possible for the axilla to hold a large swelling without there being much external sign of it. The axilla is screened in front by the thick pectoral muscles, entirely hidden from view behind by the scapula and subscapularis, whilst of course the humerus and its surroundings allow no swelling externally and the chest wall on its inner aspect is out of sight. Only one direction, then, permits swelling to be seen—that is the base of the axilla. Now this base is floored in by dense fascia, and only begins to show swelling when a considerable accumulation has collected in the armpit. These reasons must account for the fact that I see a great number of axillary abscesses which have been overlooked. Sometimes these abscesses have been of truly enormous size, so that I have been able to get fluctuation between my hands placed over the pectoral muscles in front and the base of the axilla below. In other cases the mass in the axilla has felt firm though elastic, and about the size of a golf ball. Fluctuation, redness, increased heat, should not be expected. Local tenderness over an axillary swelling with some fever, leucocytosis, and the history of a sore finger are sufficient to justify a small incision and the insertion of a director and sinus forceps under gas anæsthesia. It is only necessary to make a small incision through the skin and fascia, through which incision the director can be guided up to the swelling which is fixed by the fingers of the other hand pressing through the anterior wall of the axilla. A tube should, of course, be inserted into the cavity.

Abscesses under the deep cervical fascia are often difficult to diagnose in the early stages. They are serious since the œdema may spread to the larynx and bring the risk of asphyxia. I always warn my house surgeons to have the tracheotomy-set handy in cases of inflammatory conditions deep in the neck, and on one particular occasion a life was certainly saved by this precaution. When pus forms under the deep cervical fascia below the hyoid bone, it may cause a collar-like induration of the neck, with no fluctuation, but a brawniness and œdema, sometimes with a purplish or dusky coloration. Such a condition should be incised and opened by the method Hilton devised—knife, director, sinus forceps, tube—without delay.

Suppuration in the submaxillary and submental regions give rise to the well-known Ludwig's angina. If the suppuration is limited to the cellular tissue on one side, the early stages may be and have been mistaken for mumps, but submaxillary mumps only remains unilateral for a day or two, and is unaccompanied by fever for more than a short time. If the fever persists an abscess has surely developed. The skin gets

stretched and smooth and often paler than normal. No fluctuation nor redness till very late. Examination will often show a cause for such an abscess within the mouth. The best incision for opening a submaxillary abscess is one parallel to the lower margin of the jaw and over the maximum part of the swelling. There is no need to cut deep, for Hilton's method can be employed, and allows an adequate opening of the abscess. With a submental abscess the incision should be one along the middle line from the point of the chin downwards.

One of the largest and most important of the areolar spaces in the body is that around the kidney so that it is not surprising that large abscesses form in this situation. They are usually consequent on an abscess or whitlow elsewhere, and the causative organism is the *Staphylococcus aureus*. Lying deeply under cover of the lower ribs these abscesses often go for weeks before the correct diagnosis is made, and it is exceptional for the condition to be recognised before a fortnight has elapsed from the commencement of symptoms. Since the treatment of these cases is a very satisfactory affair it is well to emphasise some of the points in diagnosis. There is first a stage in which the only guide is the symptoms. Slight fever, malaise, possibly a rigor, and locally only slight pain when the fingers are pressed in under the ribs posteriorly. As the abscess grows bigger, signs appear at the base of the corresponding side of the chest—a little dullness on percussion with other indications either of compressed lung or slight collection of fluid. Lastly, a swelling may appear in the loin, but by the time this obvious swelling appears the patient may be in the last stage of weakness and anæmia. There may be no alteration in the urine. Any continued fever of a moderate elevation, accompanied by no other signs than some dullness at one base and some deep tenderness posteriorly at the erector-costal point, is very suggestive of a perinephric abscess in any patient who has previously had a whitlow or boil and in whom no trace of renal disease is obtainable by examination of the urine. Such an abscess is, as a rule, easily opened by a small incision at the outer border of the erector spinæ; the middle lamella of the lumbar fascia is penetrated, and the finger opens up the retrorenal space and evacuates the pus.

As a contrast to the large slowly-forming and often overlooked perirenal abscess I should like to mention a small inflammatory condition which is very painful, but may be misdiagnosed for a short while. I refer to the rather common boil which sometimes forms in the external auditory meatus. Though a boil is strictly speaking a focus of infective gangrene, yet for our purpose it may in this instance be regarded as an acute abscess, for the slough is not a noticeable feature. A furuncle in the meatus may cause such pain as to keep the patient awake for several nights running. The exudation is under tension. Some of the œdema and tenderness

betray themselves in front of the auricle whilst a certain amount of redness appears over the mastoid process. Hence the common mistake in diagnosis, for unless a very careful examination of the external meatus is made it is possible—I have known it happen several times—that an inflammation of the mastoid process may be diagnosed and an incision may be made over the mastoid under the supposition that there was an abscess there. A boil, as a rule, causes much more pain than a mastoiditis. When such a boil is seen in the meatus an anæsthetic must be given and an incision made by a narrow knife into the furuncle.

THE DIAGNOSIS OF SOME ACUTE ERUPTIONS.

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(Concluded from p. 148.)

BULLOUS ERUPTIONS OF THE SKIN.

I NOW pass to the acute bullous eruptions of the skin. It may appear surprising that in a disease with so characteristic a lesion as that of pemphigus the question of differential diagnosis should arise, but to two eruptions the name of pemphigus was formerly given, though they are both in reality probably forms of contagious impetigo. I refer to the so-called *Pemphigus tropicus*, which I have not seen, and *Pemphigus neonatorum*, of which I have seen many cases. I do not think that true pemphigus is a disease which is ever found in the newborn. There are two main bullous eruptions of this age—namely, *Pemphigus neonatorum* and the bullous congenital syphilide, to which the rather unsuitable name of *Pemphigus syphiliticus* was formerly given.

Put shortly, the diagnostic distinctions are the following: In *P. neonatorum* the general health of the child is not usually disturbed at first, and may not be at any time; in the bullous syphilide the condition of the baby is very bad, and, as a matter of fact, I have never known a patient with the bullous congenital syphilitic eruption survive. Secondly, the distribution of the eruption of *P. neonatorum* is general, without sites of predilection, unless possibly the skin under the binder and in the flexures of joints is more apt to be affected; in the bullous syphilide the palms and soles are almost if not quite invariably affected from the beginning and form very definite sites of predilection. Thirdly, the bulla of *P. neonatorum* arises on apparently healthy skin, whereas that of syphilis arises on a flat infiltrated area. Lastly, there is often a history of contagion in *P. neonatorum*.