A Clinical Lecture

ON

EARLY DIAGNOSIS AND OPERATION IN APPENDICITIS.

DELIVERED AT THE HOSPITAL FOR WOMEN, SOHO.

BY

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THAT man must be singularly unintelligent, unobservant, or indifferent who does not draw some conclusions from phenomena which are constantly brought under his notice, so that, as one who in his practice has been dealing for many years past mainly with pelvic and abdominal diseases, I have not unnaturally formed my own opinions about so common and prevalent a condition as appendicitis, together with its treatment. As time has gone on these opinions have developed into convictions—almost, one may say, into a creed—and the sum of my convictions amounts to this: that appendicitis is so dangerous, mischievous, and treacherous a complaint if allowed to make headway that it should be attacked at once and given no chance of obtaining the upper hand. We should take the initiative, not it. It should not content us to merely act on the defensive. It is we who should take the offensive without a moment's delay. So to speak, it should be "shot at sight" as soon as recognized. The frontiersmen of Southern Argentina used to have a saying some twenty or more years ago when I lived amongst them, that an Indian was no good until he was dead, and this is what I feel about a diseased appendix, that it, too, is of no value until dead and outside the human body. Every year I become more convinced that appendicitis should never receive any quarter; there should be no parleying with it, no negotiating with it, no temporizing, no dallying, no treaty, nothing from the very first but war, literally to the knife. As a general rule, when the infection and inflammation are confined within the appendix the disease can readily be treated by operation, but when the infection has spread outside the appendix, then it is often a different matter altogether. A wild cat in a bag can be easily dealt with, but if that same wild cat is once allowed outside the bag and is rampaging around the house and garden it may do a very great deal of mischief before it is caught and exterminated, if indeed it ever is overtaken and caught; and so it is with appendicitis.

Few operations in surgery are easier of performance than appendicectomy when the appendix is free and merely the seat of a simple catarrhal inflammation, and few operative procedures are safer. The mortality in such cases ought to be, and often is, *nil* per thousand under modern conditions of operating, but when the appendix is buried in adhesions or undiscoverable in a large abscess, or black and gangrenous, or in some other condition of advanced destructive inflammation or infection, or when general peritonitis is present or threatening, how difficult and anxious operation may be is known to every operating surgeon, and the risk of such operations is known only too well to the general public.

It is this point which I wish to emphasize. The public only hear as a general rule of the unsuccessful operations. It is these that figure in the daily press; they alone arrest attention, and so operations obtain a bad reputation. Because the patient dies after, and in spite of, operation, the public are apt to think because of it *post hoc ergo propter hoc*, and that if he or she had not been operated upon probably a different result might have followed. I am well aware that in advocating early operation I am preaching no new doctrine. It seems to me that for the last ten or fifteen years operating surgeons have been like preachers calling in the wilderness, for few have heeded them. Had their advice been acted upon, death from appendicitis would be an uncommon event instead of, as now, a far too frequent occurrence. But there are two conditions which are absolutely essential to success—first,

that appendicitis should be recognized early; and, secondly, that when recognized operation should be immediately resorted to.

Specialism has at the present time become necessary and indispensable owing to the vast field covered by medical activities; but it has its drawbacks, and one must admit that the different lines of treatment adopted by different practitioners, according as to whether they have a medical or surgical bias, is very often detrimental to the public interest and puzzling to the public mind. It shakes confidence in our profession when for the same complaint one practitioner recommends immediate operation and another, let us say, vibratory massage or horse serum. It is often a lottery whether a patient is operated upon or not, according as to whether he has been seen by a physician or a surgeon. The physician who does not operate is naturally unwilling to admit his inability to deal with a simple case of appendicitis; he knows that many cases, possibly most cases of a first attack, will subside; he sees them do so very often, and so he gets to think that it is not advisable to operate in every case, and that it is better to pause and see which way the case is going, or even to wait until the second or third or yet more attacks have shown that sooner or later operative measures must be adopted. A general practitioner, too, cannot afford to quarrel with his patients; he knows that to the majority of people the knife is distasteful in the extreme. He is very often told at the outset of his attendance that there must on no account be operation, and rather than lose his patient and give up the case he stands by and observes what palliative measures will do; very often he has no other alternative. He feels he has given his advice and the responsibility no longer rests with him; but if he held my views he would speak with a stronger voice, and would use all his powers of persuasion and argument to convince the patient or the friends that with an early case of appendicitis operation is a far less evil than delay. The leading features in appendicitis are its uncertainty and its insidiousness. If it were possible to endow it with personality I should consider treachery to be its leading characteristic, as with the pampas Indian just referred to, who was feared, not for his ferocity, his bravery, or his cruelty, but for his invincible treachery. In appendicitis apparently all may be going well, but within an hour a patient may be on the brink of the abyss of death. Within the shortest period the symptoms may assume so alarming a character that operation is immediately imperative, when it may have to be carried out under circumstances which are far from being ideal—in the dead of night perhaps, short-handed or otherwise handicapped, and we all know that compulsorily hurried operations do not compare favourably in their results with those deliberately planned and executed at leisure.

It is the business of insurance companies to calculate risks; every risk or chance is estimated with them to a nicety, and the premium demanded bears a definite ratio to the risk incurred. Now I would ask you what difference in premium would be required by an insurance company on the one hand from a patient who was to have his appendix removed in the earliest stage in a nursing home, hospital, or room especially prepared for an aseptic operation, performed by a skilled surgeon with picked assistants and trained nurses, after careful preparation, and on the other hand from another patient who had been running a high temperature for a week or more, who was worn out with pain and loss of sleep, whose constitutional powers had been enfeebled and his system poisoned, and who had suddenly taken such a turn for the worse, in popular parlance, that immediate operation offered the only chance of recovery? I imagine the difference in premium demanded would be considerable.

As most people are more convinced by concrete example than by abstract expressions of opinion, I will now instance one or two cases illustrating the unwisdom of delaying operation.

Some years ago a lady, who was a guest in my house, had a mild but clear and unmistakable attack of appendicitis. She quickly diagnosed her own case, and asked if I would operate. However, the fact of her being my guest and the attack not being a severe one made me hesitate. In a few days she had recovered, and I sent her to consult a friend of mine, an eminent abdominal surgeon. He did not take my view of the case at all, and, after a somewhat cursory examination, gave the patient to under-

stand that she was suffering from nothing but an attack of nerves, of which doubtless she had her share. However, in less than a month she had another attack similar to the first. She was away from London then, and consulted a surgeon in the North. He advised operation. She readily acquiesced, and it was performed. The appendix was found lying in a small abscess; it was removed, and the abscess drained by a tube. The tube in due course was removed and the wound healed, naturally after a longer period than if operation had been performed during the first attack before the formation of pus. Well, you will say, this was all right; she had her desired operation, the diagnosis was made more certain, and a good recovery resulted. Now for the sequel. A year or so later a hernia developed in the scar, as it so often will where a tube has remained for some days. A truss was prescribed, and all went well for a time, until one evening the hernia became strangulated, as herniae sometimes do, in spite of trusses. This entailed a somewhat hasty operation; the patient recovered, it is true, but had not too much to spare. It was what is called "a near thing." She was not strong, nor a good subject for operation. Now, I ask frankly, Would it not have been much better for the patient if she had been operated upon within twenty-four hours of the first attack? There would then have been no tube, no abscess, no hernia, no strangulation. The mistake in the first case, I admit, was mine. I spare myself no criticism. I wish to give the reasons for the faith that is in me. Here is another of my mistakes.

Some two or three years ago Dr. Noel Bell of Clapham asked me to meet him one day in consultation over an old gentleman whom he considered to have an attack of appendicitis. I did so. I quite agreed with the diagnosis; but as the patient was between 60 and 70 years of age, exceedingly stout, and altogether by no means an ideal case for operation, I suggested that the attack would probably settle down, and that possibly he might not have another, but die of something else meanwhile, and that I would try in his case the expectant line of treatment. About a fortnight later I received another telephone message saying that all had gone on apparently well until within the last day or two, when he had become very much worse, and Dr. Bell felt sure that something now would have to be done, as there was a decided fullness in the right iliac fossa. Again I went down, and this time arranged for operation within a few hours. The patient refused to leave his home and was in no condition to be moved. The operation was difficult, the light bad, the room small, the patient extremely obese, as remarked before, the ideal aseptic conditions one desires for operation conspicuously absent. On opening the abdomen by McBurney's method the intestines were found to be firmly adherent everywhere both to themselves and to the abdominal wall. Peritonitis had been in progress for a fortnight. In separating the adhesions and trying to find the appendix or the abscess a large hole was made in a loop of intestine, and had to be sewn up. When at last the abscess was reached a pint or more of foul pus was evacuated, and a full-sized drainage tube inserted. I was content with this, and made no search for the appendix. Well, for some time the fate of that patient hung in the balance, but he was ably nursed and most skilfully looked after, and eventually after many weeks he completely recovered; but is there any one who does not think that it would have been safer and better had I operated upon him a fortnight before, when I first saw him?

Yet another case where my delay subjected the patient to more risk than I anticipated, although here again, as it happened, all went well.

An Oxford undergraduate, a relative of mine, about a couple of weeks before going up for his "finals," was suddenly seized with abdominal pain one morning after breakfast. Dr. Turnbull saw him, diagnosed appendicitis, and he was removed to the Acland Nursing Home. Mr. Dodds Parker saw him as a second opinion, and an operation was arranged for 9 o'clock that evening. His mother went up at once to see him and telegraphed for me. Upon arrival, I found the temperature and pulse normal, only slight tenderness over the appendix, and the patient quite comfortable. It seemed to me that, in view of the close proximity of his examination and the extreme mildness of the attack, operation that evening was not imperative, and I said so, and in consequence it was postponed until

next morning. He had a good night and the next day felt in his normal health. The squall had apparently blown over, so, after a few days in bed, he left the nursing home, and in due course stood for his final examination. When that was over, he came up to London to Fitzroy House, and was operated upon by me, but for two or three weeks previously to operation he had not been feeling quite well nor comfortable in the abdomen, and on pressure there was always some tenderness over the appendix. The operation presented no difficulty. The incision was made over McBurney's point, by the muscle-splitting method, but the appendix, though free, was large, swollen, congested, and distended with pus. Obviously the patient had been walking about for some while with his appendix in this dangerous condition. Note that there was no rise of temperature to give us any hint or clue to the appendicular condition. The temperature had been regularly taken since the first attack. The patient made an uninterrupted and complete recovery, but my postponement of operation had subjected him to grave risk, which he had been spared if the operation had been performed the first day he was taken ill, as the other medical men advised.

Curiously enough, the resident medical officer of the Hospital for Women rang me up a few evenings ago while I was writing these notes, saying that he had just admitted a patient, evidently very ill, and that he thought she had acute appendicitis, and would like me to see her. A taxi quickly took me to the hospital. The patient was a woman of 22, the wife of a publican, enormously fat, weighing perhaps 18 st., with an abdomen more like a feather bed or gigantic pillow than a stomach; temperature 103.4° F., pulse 134, no abdominal movements at all, recti quite rigid, everywhere very tender, but the greatest tenderness over the appendix region; the liver dullness absent; the whole abdomen exceedingly tympanitic. It was a typical case of what is known as the acute abdomen. One thought of ruptured gastric ulcer and acute pancreatitis, as well as of appendicitis. I asked one of my colleagues kindly to see her with me, and we agreed that the appendix should be first explored. The history was that less than thirty-six hours before the patient was apparently in her usual health, but while carrying a tray at 1 o'clock the previous day she was seized with severe abdominal pain most pronounced above the umbilicus under the costal arch; her doctor at first considered it to be an attack of acute dyspepsia, but next day, recognizing the gravity of her case and diagnosing appendicitis, telephoned to the hospital and sent her up. It was obviously no case that could be postponed until next morning, so about an hour or so later we operated. I made an incision through the right semilunar line. As soon as the peritoneal cavity was opened a large quantity of thin, malodorous pus escaped under high pressure. There were no intestinal adhesions, the pus was free in the abdominal cavity, but the appendix itself was firmly glued down behind the caecum, and was separated with difficulty. It was abnormally large and long, and contained a hard concretion as large as an almond at its extremity. Subsequently our pathologist, Dr. Paramore, reported it to be gangrenous. It was removed as rapidly as possible and the abdomen mopped dry. There were some pints of thin free pus. Large drainage tubes were inserted, one into Douglas's pouch and another to drain the right flank. They were surrounded with gauze packing, and a gauze drain was put down to the stump of the appendix. The best method, in my opinion, of draining these cases is by a large tube, $\frac{3}{4}$ in. diameter with many perforations, extending from above the pubes, through Douglas's pouch, and out by the vagina. Such a tube was not available in this case. The patient was returned to bed, given continuous rectal saline injections, and kept in the Fowler position, but although the bowels acted and she took her food, yet death ensued on the fifth day from toxæmia. Several large pockets of pus, pent up amongst coils of intestine, were found *post mortem*. The general septic peritonitis present at operation had not been arrested. It had had too great a start. Although no time whatever was lost in hospital, yet operation came too late.

The attack in this case was truly of the fulminating variety. It came on almost literally with the suddenness of a thunder clap; the patient was well at 1 p.m. one day, moribund less than thirty hours afterwards, and the attack

commenced not openly as frank appendicitis but under the guise of acute dyspepsia or gastritis. Too often, like the ghost in *Hamlet*, appendicitis comes in questionable shape. To meet such desperate surgical conflagrations as this we have to be as ever ready as the fire brigade. In this case the mischief had probably been smouldering unknown to the patient for some while. I readily call to mind two cases of such smouldering appendicitis in eminent medical men of my acquaintance. Both were aware of their trouble, but both kept postponing operation, well knowing the risk of so doing. One has since had his appendix excised and congratulates himself on the fact. The other left it till too late, and one day had a fulminating attack of appendicitis similar to the case just related, and met a similar fate to hers. We all remember the famous speech of Brutus commencing, "There is a tide in the affairs of men." To nothing was it ever more applicable than to this complaint.

Here is another case illustrating both the difficult position the general practitioner is often placed in and the danger of delay in operation. One Sunday last year I received a telephonic message from a doctor in the north of London to meet him in consultation as quickly as I could, as a young lady he had been treating for some few days for appendicitis had become distinctly worse, and he was very anxious about her. Upon my arrival, before seeing the family, he told me that I must on no account mention operation; that he had done so from the first, and had nearly lost the attendance on the case, as the parents would not hear of it and were very annoyed, but that his patient was in a bad way, and he did not know what to do. I found her flushed, pulse 165, temperature 104.5°, tongue dry and coated, the abdomen distended, exquisitely tender, but it was hard to say that there was more tenderness on the right side than on the left, because everywhere was tender, but the right rectus was very rigid. It was obvious that, unless something was quickly done it would not be worth while doing anything at all; general peritonitis was rapidly supervening—in fact, had commenced. I told the parents that only immediate operation gave the patient any chance, and, my opinion being backed up by their own medical adviser, they reluctantly consented. Within two hours we commenced operation, and found the appendix, black and gangrenous, lying in a foul abscess. It was removed and the abscess drained, but for a week subsequently one could not consider the patient out of danger. She eventually made an excellent recovery, but it was many weeks before the drainage tube could be removed and before the sinus containing it had closed. The illness in this case was an affair of months rather than of two or three weeks, as it would have been if operation had taken place upon the first sign of the appendix being inflamed.

About the same time I also assisted one of my colleagues in a private case, also in a young lady, where operation had been delayed, I think, for nearly a fortnight. In this case also there was an abscess; then drainage tube, one or two operations subsequently, a prolonged convalescence, and even now I hear a sinus persists, six months or more afterwards.

Mr. Dodds Parker showed in the *Lancet* a short time ago how frequently, in those cases in which all that could be done at the time of operation was to open the abscess and drain it and not remove the appendix, the appendix remaining in the body still persisted as a source of danger to the patient. It is evident that the mere opening and draining of an appendix abscess is an incomplete operation, and must not be considered as final, nor the patient as cured and secure from further attacks. A further argument in favour of early operation, which is safe, simple, and final.

A few years ago a lady called upon me and told me she thought her son had just had a mild attack of appendicitis, but that it was of a most transitory nature and so slight that they hardly knew whether it was true appendicitis or not. Still she was anxious about him, and as he was about to go out to Uganda, she asked, supposing her son would consent, if I would be willing to excise his appendix. I replied that under the circumstances I considered I should be justified in doing so. However, the patient thought otherwise and no operation took place. Whilst in Uganda the appendix gave no trouble, but this young man, being somewhat of a rolling stone, some while later found himself in British Columbia, and there he had an attack of

appendicitis which very nearly cost him his life. In this last attack he had to be carried down to the coast and operated upon there after some days' delay; an abscess had formed and he had a long and weary convalescence. How infinitely less would the risk of operation have been had the appendix been excised in the first instance before he left this country!

Yet one more case. A gentleman, a member of the Stock Exchange, consulted me for occasional attacks of right-sided abdominal pain. He himself thought it was his liver that was out of order. I saw him once or twice, and after a while told him I thought he was suffering from appendicular colic, and advised him to go into a nursing home. This he did; I watched him for a few days and quite made up my mind that his appendix was diseased. I told him so, and that the wisest thing, in my opinion, would be for him to have it removed. However, as he felt better he left the home, saying the rest and treatment had done him a world of good and he would see what happened. Now for the sequel, which I heard at second-hand. This gentleman was staying at a country house where, luckily for him, an eminent surgeon happened to be a guest at the same time. There he had a definite attack of appendicitis. The surgeon aforesaid acted with promptitude, took the patient up to town by motor car, and operated upon him the same evening in a nursing home. Well, all this was more dramatic and thrilling, partook more of the nature of an adventure, called for more sympathy, evoked more interest, but I think that every one will agree with me that this latter procedure was more risky than if the patient had been operated upon when he was quietly resting in a nursing home on the first occasion; and one must never forget that if operation is submitted to early all the pain and vexation of later attacks are avoided, and this in itself to busy men and women is a consideration of some value.

These few cases that I have recited are examples of the unwisdom of delay in operating. They are but types of too many that I have come across, and of nothing am I more convinced than that hesitation to resort to operation in every case of appendicitis without exception is fraught with risk, very often with the gravest risk. Last year the public read with sorrow of the death of two young noblemen after operation for appendicitis. It was, however, common knowledge that neither of these boys was operated upon within twenty-four hours of the first attack, but after several days' delay. The general public, in estimating the value of operation, does not weigh this most important fact; but without wishing in any way to criticize or to pass judgement upon the actions of others, nothing will convince me but that those boys, had they been operated upon within twenty-four hours of the first onset of symptoms, would be alive to-day. What operating surgeon of any experience but does not agree with me? To the physician and to the general practitioner who do not see the necessity for operating in all cases, I would remark that it is quite possible to cross the Atlantic in a cranky ship, to walk on thin ice without coming to grief, but that if one wishes not to run risks and take chances one avoids doing these things; and where human life is concerned, especially when we are the advisers in such cases as appendicitis, it behoves us to subject our patients to no more risks than are necessary. How bright the picture is when patients are operated upon within twenty-four hours or less of their first attack every one knows. I could quote them by the score, but these cases are so uneventful as to be uninteresting. The operation is easy, the convalescence perfect and uninterrupted; boredom from enforced idleness in bed is the only drawback.

I am not suggesting that every case of stomach-ache should be treated by operation—far from it. We are medical men, and our training should fit us to make a more accurate diagnosis. The pendulum often swings from one extreme to the other. A few years ago the appendix was removed so frequently in America that it was said that no lady could pretend to be a woman of fashion unless she had either been through the divorce court or had had her appendix removed. Remember *in medio tutissimus ibis* in this as in all things. My contention is that when the diagnosis has been made, recourse to operation should follow as surely as the night the day, and appendicitis is what every medical man should be constantly on the look-out for; 90 per cent. of all acute abdominal emergencies are

due to mischief in the appendix. It is infinitely commoner than ruptured gastric ulcer, acute pancreatitis, impacted gall stones, or strangulated bowel. Remember that the pain in the first instance is not always localized to the appendix region, but may be referred to the umbilicus or elsewhere in the abdomen. There may be nausea, there may be rise of temperature and accelerated pulse, but there nearly always is as a constant symptom tense rigidity of the right rectus. This, to my mind, is the key to the situation. It is Nature's effort to protect a sick appendix. This rigidity in conjunction with two or more of the recognized classical symptoms should make diagnosis no very difficult matter. In women it is not always easy to differentiate chronic appendicitis from chronic right tubal or ovarian mischief, but these are chronic cases, and careful examination per abdomen and per vaginam may help one, but I have seen several cases where even at the time of operation, and subsequently by pathological examination, it was quite impossible to say whether the appendix or the right tube and ovary were first affected. Both appendix and tube have been matted together, both inflamed and involved in a similar infective process. It is safe, perhaps, to conclude that if the opposite tube is normal the mischief arose in the appendix, but if both tubes are the seat of pyosalpinx or salpingitis then it is probable that the appendix became involved secondarily, but to enter into this question is beyond the scope of this paper. It has been said that he gives twice over who gives quickly, and I am sure that that surgeon confers a double benefit upon his patient who operates quickly as soon as appendicitis is diagnosed: I shall be amply repaid if anything I have said will add by ever so little to the accumulating weight of evidence in favour of early operation in this disease.

CASES OF PERFORATIONS OF THE STOMACH AND DUODENUM.

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ALTHOUGH the four cases here reported are none of them complete as regards their histories, yet I think each presents some feature worth attention.

Two are cases of perforated gastric ulcers in men aged 45 and 40 respectively; one is a perforated ulcer of the duodenum in a woman aged 37, and one is a traumatic perforation of the stomach in a boy aged 10. The latter was interesting from the fact that although the perforated stomach was for about nine hours full of rice and curry, yet no leakage occurred. I omit this case in the following general considerations:

The three cases of perforated ulcers came in as abdominal emergencies so far advanced that operation, though undertaken, was little more than a forlorn hope, especially in Cases I and III, where interference perhaps only served to precipitate otherwise certain calamity.

In Case II, although two perforated ulcers existed, only one was detected at operation; but I doubt that, even if both had been dealt with, death would have been prevented, owing to the involvement of the ascending colon in an extensive gangrenous process. However, this case proves the necessity of a careful examination for two or more perforated points, which has occurred in as many as 20 per cent. of the recorded cases of gastric ulcer (Mayo Robson).

Only in Case II was there any clue to a correct diagnosis as to the cause of the peritonitis; and here, too, the clinical picture was clouded by signs of appendicitis—a complication more usually associated with perforated duodenal than with gastric ulcers.

The apertures were all on the anterior surfaces, two close to the lesser curvature, one close to the greater. Here the common rule of perforation was not transgressed. For although the location of peptic ulcers is much less frequent in the anterior wall (being commonly situated on the posterior wall of the pyloric end, at or near the lesser curvature), yet the chances of perforation of an ulcer of the anterior wall are 5 to 1 in its favour, owing to mobility which prevents adhesions (Kemp).

In all the cases the ulcers were of the chronic indurated

variety; Case II was complicated by a subacute perforation as well.

Sex and Age.—Perforation of duodenal ulcers is more frequent in men (10 to 1, Eisendrath). My case occurred in a woman 37 years of age. Perforated gastric ulcers are more frequent in women (4 to 1, Eisendrath). Robson states that five-sixths of the perforations of gastric ulcers occur in women, but perforation is *relatively* more frequent in men, especially in men over 40. The two gastric perforations here reported occurred in men of 40 and 45 respectively. In the BRITISH MEDICAL JOURNAL of February 17th, 1912, Moynihan makes the following statement: "The disclosures upon the operation table prove that duodenal ulcer is decidedly commoner than gastric ulcer. The ratio is probably about 5 to 1."

Complications.—General peritonitis in all my cases—a gangrenous colon in one, with extensive perigastric adhesions; although free gas was present in the peritoneal cavity of two of the cases, I did not observe subcutaneous emphysema in any. Case II presented extensive perigastric adhesions which bade fair to avert death had not a second subacute rupture supervened.

CASE I.—Perforated Chronic Gastric Ulcer.

J. S., 45, male, Cingalese coolie, came walking into hospital one morning, and was not seen by me until four and a half hours later, when I found him lying in bed profoundly ill. He presented the following symptoms: Restlessness and an anxiety of expression which asserted itself in spite of the drowsiness and apathy which seemed to overcome him. His pulse was imperceptible and his breathing thoracic. He was intolerant both of questions and physical examination. All I could obtain as regards his previous history was that he had asserted on admission that he was an opium eater and had partaken of a quantity of this drug to allay the pain he experienced in his abdomen. This circumstance, although it gave him the energy to walk into hospital, tended to obscure considerably the symptoms of the case and to entail a delayed diagnosis of abdominal emergency on the part of those in immediate attendance. Even when I saw him, drowsiness and apathy coexisted with anxiety of expression, a paradoxical grouping which I was at first at a loss to explain. Whether or no the opium habit was initiated by the pain of chronic gastric ulcer I was unable to determine. The abdomen was uniformly tender and distended, the flanks were dull. No specially painful or tender area could be determined. The bowels had not moved for four days, but responded slightly to an enema of soap, castor oil, and turpentine. Vomited four times since admission. Liver dullness diminished. Duration of illness was said to be three days, although what precisely this term implied was not clear.

Operation.—As a forlorn hope (which, perhaps, would more justifiably have been abandoned owing to the patient's moribund condition) I undertook operation. Air escaped with a rush as soon as I opened into the peritoneal cavity, which was found full of purulent fluid. This was swabbed out and irrigated with warm saline as quickly as possible, and suprapubic and loin drainage established. To look for the causative lesion was hopeless, owing to the patient's condition, and I had at this stage to relinquish the operation, which had not taken more than fifteen minutes. The patient expired a few minutes later.

Post-mortem Examination.—There was an ovoid perforation on the anterior wall of the stomach half an inch from the lesser curvature and pyloric sphincter respectively. The perforation was found to occupy the

Diagram to illustrate sites of perforation. The figures 1, 2, and 3 correspond to the cases to which they refer.

expanded extremity of the anterior limb of a saddle-shaped chronic ulcer with markedly indurated edges. The ulcer rode the lesser curvature quite close up to the pyloric sphincter, and braced up the first part of the duodenum by adhesions.