PITFALLS IN MEDICINE*

BY

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How often are we wrong? One searches in vain for precise information pointing to the error-proneness of physicians, surgeons, and general practitioners. Some indication of consultant fallibility is offered by Scandinavian analysis based on a thousand consecutive necropsies. This reveals 67 completely faulty diagnoses and a higher number of incomplete assessments of the morbid processes during life. Carcinoma of the stomach and bacterial endocarditis in old people rank high in the list.

Mistakes largely due to vagaries of disease rather than to faulty approach by the physician can be traced as a rule to unusual patterns of symptoms—less often to puzzling physical signs.

Misleading Symptoms : Coronary Artery Disease

Rather surprisingly, perhaps, we find coronary artery disease may present in such strange ways, or be mimicked so closely by other conditions, that it provides a formidable pitfall even for those who devote themselves to diseases of the heart. A few case histories may be of interest.

A middle-aged man ran over a common in pursuit of his dog. He was pulled up short by intensely unpleasant pain across the middle of the chest. He walked home slowly, the pain abating in the meantime, but not disappearing until he had rested in bed for two days. Seen by a cardiologist on the second day, he was told he had angina pectoris and probably coronary thrombosis, in spite of a normal electrocardiogram. At the end of a week a further pain seized him in the same position, this time radiating into the left arm. It now fluctuated in intensity, but did not completely disappear even at rest. X-ray examination revealed carcinoma at the root of the left lung.

A man of 52 sought guidance on whether he had angina pectoris. His pain was felt across the chest at the level of the third and fourth ribs. It was constricting in character, never coming on during exercise, of which he took plenty, but occurring only when sitting in his chair. A complete overhaul and an electrocardiogram revealed no abnormality. He died three months later of coronary thrombosis.

Another man of 53 about to re-marry complained of pain on exertion of type and distribution typical of angina pectoris. There were no physical signs of disease and his electrocardiogram at rest and after exercise was normal. He was alarmed by being told that he had angina and must greatly restrict his activities. He married nevertheless and became a father, and had no attacks after the first day of his honeymoon, which was now seven years ago. Presumably fear of inadequacy produced these symptoms, but how is this to be distinguished from such a case as the following?

A man of 58 years was seized with agonizing constricting pain across the chest. He became pale and sweaty and the pulse was feeble and rapid. His blood pressure was 90/60. His doctor diagnosed coronary thrombosis and injected morphine. A cardiologist a few hours later agreed, but noted normal E.C.G. Apart from a little left pectoral soreness next day the man felt well. There was no pyrexia, leucocytosis, or raised sedimentation rate during the following week. The B.P. returned to his normal of 136/72 and

the electrocardiograms taken on the third and the eighth day were normal. His domestic background was that he had been at loggerheads with his wife for the last 10 years, and the doctor suspected that this might have in fact precipitated an attack simulating organic disease. He was a little short of breath after this seizure, and five weeks later the whole attack was repeated, as also were the normal findings. The obvious alternatives of gall-stone colic and hiatus hernia were excluded. He then went for a sea voyage and felt well, noticing, however, a little substernal tightening if he played deck tennis. Six months after the first attack he was seen in London, where he added to the above history that pain would occur in the usual anginal site if he walked quickly up an incline such as Regent Street. Electrocardiographic tracings failed to show deviation from the normal even after exercise. The general clinical examination revealed no disease. X-rays of the heart were likewise normal. He was told, nevertheless, that he suffered from angina pectoris and was advised to go slowly. He died suddenly in the street three weeks later, thus providing invaluable necropsy evidence. He had an extensive antero-lateral infarct of the heart, a slight degree of coronary atheroma, but no sign of earlier infarction and no diffuse fibrosis of the myocardium.

Are his first two prolonged seizures to be attributed to coronary spasm? If not, how can we explain the remarkable course of events? How well this illustrates the enduring value of diagnosis based on symptoms in the face of contradictory instrumental revelations.

A different outcome is shown by a woman of 54 years who on exposure to cold winds, hurrying to catch a bus, or walking sharply after a meal, noticed what she described as a tight pain under the mid-sternum. She would then stand still, belch and recover, but if she walked quickly the pain would recur. A full clinical examination was unrevealing. The electrocardiogram was normal. She stressed that the pain never occurred except under the conditions I have mentioned. Angina pectoris was then diagnosed, but with a cautious afterthought that it was unusual in the female. This led to a cholecystogram which revealed gall-stones. Her appetite was unimpaired; she enjoyed rich food and never suffered from flatulent dyspepsia. Surgery has cured her.

Although the association of gall-bladder disease and angina has been recognized for half a century, it is seldom that such whole-hearted mimicking is encountered. Had the patient been a man it is doubtful whether the cause would have been searched for.

A retired bank manager of 62 suffered from recurrent pain in his front teeth. His doctor and dentist rendered him edentulous. He then had the pain in the jaws. The presence of pyorrhoea and lack of care in anamnesis directed attention to the wrong part of the body. In fact, the pain occurred only when he rolled the lawn, and was clearly anginal. The only occasion when it was felt in the chest was in the final fatal attack.

Here I will leave coronary disease, with a reminder in passing that spells of faintness or dizziness in old people are as often as not due to bundle-branch block and not, as is commonly supposed, to cerebral arteriosclerosis.

The Appendix

Passing to the digestive system in search of strange symptoms, we find, possibly with surprise, that appendicitis heads the list. The classical symptoms and signs of the disease are so well known that, when present, diagnosis is immediate; but what is not fully appreciated is that this organ may give rise to the most diverse and misleading symptoms with but few physical signs—for instance, pyrexia of unknown origin, ushered in with a little diarrhoea may be traced to a retrocaecally placed inflamed appendix. To this I would add two other examples.

One of these is a septicæmic variety in which the appendix lies in the pelvis, the offending organ being thus difficult

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to affect by palpation through the abdominal wall. The onset of slight and transient abdominal discomfort, followed by swinging temperature, sweating, leucocytosis, shivering and rapid pulse, may well be all for several days. Rectal examination does not necessarily help at first. It is only by dogged perseverance and re-examination of the patient that the answer may be revealed, remembering always that the first symptom of a disease is, as a rule, the most helpful in elucidating the cause. Usually by the fifth day there is obvious tenderness on rectal examination. At operation one may find the appendix lying in the pelvis with a little serous effusion around it and thin vascular adhesions which have not adequately shut it off from the peritoneal cavity.

The other peculiar position of the appendix which causes trouble is when that organ runs upwards along the side of the ascending colon and, if unusually long, is actually attached to the liver or gall-bladder or to the transverse colon. In this position the inflammation causes severe high epigastric pain with tenderness over the gall-bladder, thus leading to the diagnosis of acute cholecystitis. Here a clue to the true nature of the trouble may be given by studying the course of the pain as it subsides. It usually moves downwards towards the right iliac fossa, whereas gall-bladder pain never moves in this direction.

Appendicular colic in the adult is diagnosed more often than not as colon spasm. The sudden intense pain felt across the mid-abdomen, lasting for perhaps half an hour and leaving no trace in its wake, is not readily explained. Only if the patient is seen in an attack is tenderness at McBurney's point likely to be found. The bouts occur at irregular intervals, often of long duration, and the complete freedom from discomfort between seizures lulls the practitioner into a sense of false security. Eventually the condition reveals itself by a frank attack of appendicitis, but not necessarily in less than several years.

A physician well known for his care and sound judgment told me that of 60 persons whom he had regarded confidently as sufferers from colon spasm no fewer than nine proved in fact to be suffering from appendicular colic and achieved cure through surgery.

Pancreas

Next to the appendix, the pancreas provides the majority of intra-abdominal pitfalls for the unwary, or indeed for the wary. The diagnosis of carcinoma of the head of the pancreas is usually a simple matter, because it is so commonly associated with increasing jaundice in the absence of pain. Occasionally, however, the common bile duct is not occluded by carcinoma, and a vague deep-seated discomfort may be the sole symptom to draw our attention to the abdomen. An x-ray film of the alimentary tract may be revealing to eyes which are trained to look, in that the loop formed by the duodenum is appreciably widened by the growth.

More difficult and more common problems associated with the pancreas, however, are presented when the carcinoma develops in the body. Here we have backache as a sole symptom, and it may be the only one for many weeks or even months before the true nature of the disease is clear. It has a peculiarly distressing boring nature and is felt in the upper lumbar region, although occasionally it is experienced between the shoulder-blades. It is not obviously affected by movement and does not as a rule radiate in any direction. It is just a persistent unpleasant backache felt day and night. Tenderness of the vertebrae is not present, neither is there abdominal tenderness. X-ray films of the spine and alimentary tract are normal. Examination of the stools is usually fruitless, and it is quite likely that the serum amylase will be found to be of normal value. No wonder, then, that so many of these patients are regarded as neurotic, and only later, when they start to lose weight or develop metastases in the liver, or when the growth spreads along to the head and causes jaundice, is

the organic cause of their symptoms apparent. Sometimes the growth spreads in the other direction, through the tail, and we may be faced with the puzzling condition of a deep-seated abdominal pain and an enlarged spleen. Enlargement of the spleen is due to direct involvement of that organ with growth or to invasion of the splenic vein. Direct spread from pancreatic carcinoma may be upwards towards the diaphragm and produce pain in the lower chest or even in the shoulder and downwards behind the peritoneum, so that it may in fact cause, as a presenting symptom, sciatica. It is fortunate that these symptoms and signs are associated with a disease for which little can be done in any case.

A woman of 60 was troubled with bouts of copious vomiting unaccompanied by pain. There was no recognizable pattern to her emesis, for it might occur twice in one day and then disappear for three or four days. An x-ray examination after a barium meal gave no clue to the nature of the trouble. There was no blood in the stools. Opinions on her condition were sharply divided. In the bouts she presented a picture of pyloric obstruction, and she had in fact lost weight. At this stage she was admitted to hospital under a physician who was much drawn to the study of psychosomatic disorders. On more than one occasion she was demonstrated as a classical case of hysterical vomiting. Later, under another influence she was subjected to laparotomy, and an unusual cause for such seizures was found. It was carcinoma which had so enlarged the head of the pancreas that its pressure produced obstruction, varying no doubt with her posture, of the second part of the duodenum.

Neuroses of the Digestive System

From time to time we meet patients who suffer from flatulent dyspepsia, a feeling of distension after food, and on occasion attacks of quite severe pain in the epigastrium which come on suddenly and which may last for two or three hours and then pass off, leaving a certain soreness in the upper abdomen. Sometimes, the next day, they are a little jaundiced. They are usually women, commonly in the late thirties. Examination between attacks will reveal some tenderness in the usual position of the gall-bladder, and in an attack it may be extreme.

It is not surprising that a diagnosis of cholecystitis and probably gall-stones is made, yet a normal cholecystogram may render this improbable. These patients form a section of a large and interesting group of individuals who do appear to suffer from spasm, here and there, of the various viscera. I have already mentioned that this diagnosis is a dangerous one, and we should be constantly on our guard against attributing to simple spasm what may be due to some serious disease. If there should be a history of headache, and if it be typically migrainous in character, then it is not far-fetched to attribute the condition to abdominal migraine. Presumably the fact that jaundice occasionally follows indicates that there is a true spasm of the sphincter causing a temporary hold up in bile flow.

Far more common than these cases of apparent cholecystitis are the bouts of colon spasm. It is wise to be chary of such a diagnosis unless the attack is felt on the left side of the abdomen, and unless, in a bout, the colon has been felt to be a hard, tender cord. It is unusual for colon spasm to involve the ascending colon, and only a little more usual for it to affect the transverse colon. We must never forget that the gut may go into spasm as the result of underlying disease. There is a form of spasm which can provide a great diagnostic difficulty. This is a ring contraction of the colon.

A middle-aged woman, known to be of anxious temperament but hard-working and capable, was seized with obstinate constipation, colicky abdominal pain, and inability even to pass flatus. Purges had been found unhelpful, and an enema had been returned uncoloured. Examination showed distension of the abdomen, a typically large intestinal distension, and an empty rectum. A

diagnosis of acute obstruction was made, the cause probably being diverticulitis or carcinoma. A barium enema showed a ring constriction about the level of the anterior superior spine on the left side which was confidently diagnosed as a string carcinoma. Nevertheless, the suddenness of onset without previous history is so uncommon in carcinoma that the surgeon in charge refused to be panicked into operation and ordered the administration of a bile enema. This resulted in copious emptying of the bowel, and a later x-ray examination showed a completely normal gut.

The reverse of the picture was provided by a man of 60 who had been having attacks of left-sided abdominal pain, colicky in nature, associated with intermittent constipation. He did not pass blood or mucus. The history was very suggestive, therefore, of partial obstruction of the large gut. Carcinoma was diagnosed on the symptoms, although the physical signs were unrevealing. A barium meal was given and followed down into the large intestine. At the junction of the descending and iliac portion there was some narrowing and hold-up of the meal, but a little had trickled through distally. No obvious irregularity pointing to growth could be observed. The radiologist's view was that this was suspicious but that he could not commit himself without a barium enema. This was carried out and the colon seen to fill well. The man was told that he had colon spasm. A month later he was seized with acute pain which was due to perforation of the large gut above a carcinoma of the colon.

This example illustrates the value of a clinical appraisal as opposed to specialized investigation, and also sets at naught the argument used by some radiologists that it is pointless to follow the barium meal beyond the ileo-caecal region, in that reliable information about the colon can be obtained only from a barium enema. This is utterly false, because they do not take account of the effect of a large amount of barium on the gut. When it is run into the colon it acts powerfully as a distensor, and an irregularity such as was shown in this case when the barium reached the bowel by the normal route is completely obliterated by hydrostatic pressure. The man's life could have been saved if that point had been appreciated.

Gall-bladder

The gall-bladder, like the appendix, has by no means a constant position in the abdomen, although it is less capable of wandering than is the latter. When it is in its customary position, inflammation or stone will as a rule produce the typical symptoms and signs. At other times, however, it lies a long way lateral to its usual point and may give rise to pain, not across the epigastrium, but well to the right side. Although visceral pain is usually felt fairly symmetrically across the middle line, at times the inflammatory process causes it to coincide with the actual position of the organ by involvement of the parietal peritoneum. Thus a gall-bladder placed laterally, the fundus lying approximately in the continuation of the anterior axillary line, is especially prone to cause acute pain in the right side of the chest aggravated by breathing and suggestive of pleurisy. As there is associated inhibition of the diaphragm, it is only a matter of an hour or two before impairment of resonance over the right lower lobe can be detected, as the result of the air's being rapidly absorbed from the partially immobilized lung. The physician may therefore be faced with a patient breathing rapidly and shallowly, clearly in pain, with diminished movement of the right side of the chest and impairment of resonance, and tenderness over the tip of the eleventh rib. It is not unknown for him to make a diagnosis of pneumonia with diaphragmatic pleurisy, when in fact the basic lesion lies in the abdomen. For the first 24 hours it may be extremely difficult to make a diagnosis on clinical grounds, and an x-ray film of the lungs will also be of no help in distinguishing this manifestation of cholecystitis from pneumonia. Acute pneumonia does not necessarily show in an x-ray picture in the first 24 hours. From then on the diagnosis becomes easier because there is an

absence of the normal adventitious sounds one would expect in a right basal pneumonia, the respiration rate tends to fall rather than to rise after the initial acceleration, there is no flushing of the face, and indeed jaundice may appear.

Gall-bladder disease may simulate so closely that of coronary thrombosis as to present an obstacle to diagnosis. This is especially so if the organ be medially directed. The pain may be constricting in nature and felt across the lower third of the chest and not in the abdomen at all. The patient will probably be of the same build and age that commonly is affected by one or the other disease. He may well be pale, sweaty, and vomiting in either. The blood pressure and pulse may not be affected by coronary thrombosis for several hours. When it comes to examination of the abdomen there will be tenderness over the area of the gall-bladder, but in acute coronary thrombosis there may be sudden congestion of the liver with expansion and stretching of the capsule. The distinction between liver and gall-bladder tenderness is not easy to recognize in an individual groaning in pain. On paper the differential diagnosis is easy; in practice it has felled more than one expert physician and surgeon. It should be remembered that there is a practical side to the differential diagnosis, because nowadays the treatment of acute cholecystitis is highly effective by the use of suitable antibiotics, whereas the administration of morphine is unwise when we bear in mind that its normal action is to cause a great rise of intrabiliary pressure.

Diaphragmatic Hernia

Heartburn, for many years an inexplicable form of indigestion, we now know to be more often than not due to reflux of acid contents into the oesophagus as the result of hiatus hernia. The fact that this has been overlooked for so long is as much of a reproach to physicians and radiologists as the inability to grasp the mechanical nature of sciatica was a discredit to us and the orthopaedic surgeons. Nowadays this presents no particular pitfall except by confusion with the phrenic ampulla. The para-oesophageal hernia is still providing a number of diagnostic mistakes in respect of anaemia. This form of hernia is often associated with a high-grade hypochromic or, rarely, a normochromic anaemia, which will on occasion respond to full doses of iron but sometimes is most intractable until surgical correction of the abnormality has been performed.

Peptic Ulcer

I shall not dwell on peptic ulceration, for the features of this condition, whether in the oesophagus, stomach, or duodenum, are well known, although perhaps it is not so widely appreciated, except by those who have practised our art for many years, that the distinction between gastric and duodenal ulcer on clinical grounds is not nearly as easy and straightforward as is suggested by the textbooks. I would like to refer to an extraordinary reflex from duodenal ulceration which I have met only five times in a series of 800 cases, and that is pain felt entirely in the lower abdomen but relieved by food and present when the patient is hungry. These patients have been trustworthy witnesses. There was in fact no suspicion of epigastric pain. Pain in two was felt in the hypogastrium, in three in the left iliac fossa. The explanation, I think, is revealed by the finding in these three, by x rays, of a ring spasm of the descending colon which was extraordinarily persistent. The barium had been taken by mouth, and when this spasm was seen the stomach was empty; when the patient was given a glass of milk to drink the abdominal pain vanished and signs of spasm also disappeared. When there was a relapse in two cases the spasm recurred. We are familiar with a reverse form of reflex in which acute lesions of the large gut cause pylorospasm and vomiting, but that which I have just described can be claimed to be a rarity.

Only twice in thirty years have I seen obstructive jaundice caused by a chronic duodenal ulcer. In one example the diagnosis was suggested by an associated profuse melaena

which had been attributed to the haemorrhagic tendency induced by such icterus. In point of fact obstructive jaundice never gives rise to appreciable melaena.

In both cases the common bile duct was found to be greatly distended, a state which was shared by the gall-bladder. The ulcer was close to the junction of the first and second parts of the duodenum, though in the former. The obstruction was not due to invasion of the bile papilla but due to inflammatory thickening and oedema of the gut wall. It is surprising that this is not commoner.

Diarrhoea

The symptom which is the most difficult to associate with a firm diagnosis at a single consultation is diarrhoea. Of the serious causes carcinoma comes to mind, and it is particularly the growth which is difficult to discover which is most likely to cause it without pain and without the passage of blood and mucus obvious to the naked eye. Carcinoma of the caecum seems singularly evasive to radiological investigation. From time to time a lump may be felt in the right iliac fossa, but on other occasions this sign has disappeared and the physician is apt to assume that he has just felt a loaded caecum, and an opportunity for a life-saving operation is lost.

No unexplained case of diarrhoea should be allowed to pass from observation without the most careful examination, and if all appears normal except for persistence of occult blood we should not shrink from laparotomy. If the diarrhoea be associated with anaemia the diagnosis of carcinoma in this position is made highly probable. In fact, the presenting symptoms here may be shortness of breath with pallor, only trivial reference being made to loose stools. Taking, however, the cases of diarrhoea as the only presenting symptom—that is to say, where no pain is felt—although occasionally we find the cause lies in uraemia or Addison's disease, the majority prove to be simply those of intestinal hurry. My impression is that this is increasing and possibly is associated with the apparent increase in states of anxiety which we see.

The story, then, is usually that for many years the stools have tended to be rather on the loose side and to occur especially on rising in the morning and perhaps once or twice after breakfast; there is peace for the rest of the day. As years pass the diarrhoea becomes a little more frequent, occurring after all meals. There is no associated anaemia or loss of weight, but there is a feeling of exhaustion. Radiological examination by barium meal will show a remarkably rapid transit of barium from mouth to anus. The stomach is usually hyperactive, emptying itself in a quarter to half an hour, the caecum is reached in anything from half an hour to three hours, and the barium arrives at the splenic flexure a short time afterwards. As a rule these patients are not suffering from any profound disturbance of the psyche, but are those of intense personality, ambitious, hardworking, never relaxing in mind, and seldom taking exercise for the body. They carry their problems home with them and their work occupies them at week-ends. When they go on holiday they take the unwise of all—namely, car-driving from one part of the Continent to another. In the minority we trace the matter to gnawing anxiety, which seems to reflect itself on the alimentary tract. Apart from dealing, if one can, with such underlying anxiety, the physical approach to this, which is nearly always successful, is the administration of one of the many drugs that will delay the rate of passage through the alimentary tract. Of the traditional remedies a combination of hyoscyamus and codeine will often prove effective, and in the more stubborn cases the powerful parasympatholytic agent tricyclamol will succeed.

Prognosis and Misleading Physical Signs

Failure in respect of prognosis dogs us throughout our professional life. This must always be so, for there are too many imponderables influencing the course and outcome of a disease to allow of accurate forecasting. Although a

fair degree of certainty can be expressed in relation to carcinoma of the stomach, motor neurone disease, pneumonia, and many other afflictions, cardiovascular diseases vary so greatly from patient to patient in their lethal power that it is wise to be a little vague and usually to lean towards optimism. Statistical evidence is singularly unhelpful in assessing the individual problem. My impression is that the physicians of the earlier generations who relied solely on experience and their five senses were far more accurate in their prognoses than most of us who practise to-day.

A remarkable example of prognostic failure was occasioned by a business man highly successful in his financial dealings, aged 59, limited in activity by virtue of visual defect, happily married, and living in comfort. He developed headaches, drowsiness, thirst, occasional loose stools, nausea, and loss of weight. His doctor, who examined him, found that the urine was of fixed low specific gravity (1004); it was loaded with albumin and contained some granular casts. The blood urea was 76 mg. per 100 ml., rising in a month to 110 mg. The blood pressure had risen from his normal of 150/80 to 190/106. The urea clearance test revealed 18% of normal function. He concluded that his patient had chronic nephritis, a view which was endorsed by the consultant to whom he brought the case. In the course of the next three months the symptoms became worse. Albumin was found in considerable quantity in nearly all specimens of urine. A bad prognosis was given. It was thought that the patient would die within the next three months. He was instructed in the traditional lines of dieting for chronic nephritis, and he followed these with care. After a week or two he asked his doctor if the consumption of Worcestershire sauce was in any way harmful. It seemed that he had been taking from half to one bottle of it daily for many years. He said he did so because he liked it. Whatever the reason for his consumption of this enormous quantity, the fact remains that he did take it as a beverage. It was promptly stopped. Within a month the albumin and casts disappeared, the blood pressure and the blood urea had returned to normal, the patient rapidly put on weight. Two years afterwards, he is symptomless, and the only sign of latent renal disease is occasional albuminuria. So far as I know, this is unique. It is, I think, an error in prognosis which might be forgiven.

Lumps in the upper left quadrant of the abdomen cause more trouble in diagnosis than masses elsewhere in the body, not only to the inexperienced but to physicians and surgeons of many years' standing. A slowly enlarging mass appearing from under the left costal margin, dull to percussion and seeming to have a well-defined edge, often proves to be a retroperitoneal sarcoma. The absence of a notch is a small point—that is to say, the finding of a notch stamps it as a spleen, or usually does, although I will give you an example in a moment where even this fails. Even in considerable splenomegaly it is not always possible to feel it. Furthermore, a very large spleen can be felt bimanually, the other hand being in the loin, and confusion with an enlarged kidney is readily made. It is a matter of interest to observe how few candidates for the Membership recognize polycystic kidneys, usually calling the left one spleen and the right one an enlarged liver.

A woman who had suffered from pernicious anaemia for many years started to go downhill, to become anaemic in spite of the usual treatment, and to lose appetite. She was known to have had a gastric ulcer many years previously. On examination, apart from signs of anaemia, she was found to present a lump which emerged from the left hypochondrium and which moved with respiration. It was firm to the touch and not completely dull, but had not the resonance of gut or stomach. It could not be felt in the loin and there was a notch on the inner border. It was postulated that this was a spleen enlarged from pernicious anaemia, which had escaped control owing to a faulty preparation of liver. I should add that this case dates to the days when only liver injections were available and were of varying quality. In spite of changing to more recent and highly potent preparations, she continued to go downhill

and the lump increased in size to an extent never met with in a spleen of pernicious anaemia. To cut a long story short, she had a carcinoma of the stomach. The point of special interest here is that at necropsy it was found that she had, as it were, a notch in the stomach, and it had been produced by cicatricial contraction arising as a result of a chronic gastric ulcer which had healed years previously and thus simulated the general structure of the spleen. This is a difficulty which is not likely to be met often.

A young man fell from his motor-cycle and cut his leg. His doctor administered antitetanic serum. Ten days later the patient noticed stiffness in the movement of his jaw, and pains and muscular aching in the back and limbs. The onset of all symptoms was simultaneous: this highly significant fact was overlooked at a hospital where he was given antitetanic serum intravenously on the strength of a misdiagnosis of tetanus. He died promptly of anaphylactic shock.

The confusion between serum sickness and tetanus is by no means uncommon, though fortunately not as a rule leading to such a lethal result.

The physical signs presented by changes inherent in old age will from time to time mislead the unwary. Petechial haemorrhages, anaemia, tremor, albuminuria with casts, bouts of giddiness, to mention but a few of the common manifestations of advancing years, are apt to lead the less experienced into searching for some far more serious cause than the march of time. We must remember also the great frequency with which degenerative changes occur in the spine in individuals over 50, and in fact with every ten years of age after that period of life the incidence of spondylosis mounts very rapidly. Although modern work has revealed the remarkable manifestations which may be directly due to cervical spondylosis, many of them in the neurological field, I observe here the same over-swing of diagnostic enthusiasm that we met in connexion with the lumbar disk lesion. In the last year I have seen attributed to cervical spondylosis such diverse conditions as intraspinal tumour, senile tuberculosis of the spine, motor neurone disease, carcinoma of the stomach with metastases in the spine, and poliomyelitis.

Conclusion

I have purposely refrained from discussing failure to recognize rare diseases—in the first place because, for obvious reasons, this is uncommon, and, secondly, because it provides no help in facing the problem of rarities encountered in the future.

Lurking, however, in the diagnostic undergrowth are traps set by the appearance of well-known physical signs, which are usually, but not always, associated with readily recognized diseases. The examples which come to mind are atrial fibrillation as the first sign of bronchial carcinoma, and the clinical picture of Cushing's syndrome from the same cause.

Idiopathic thrombophlebitis migrans is very rare, but the accepted physical signs may be perfectly reproduced by metastases in the venous walls. This so often proves to be the case that every apparent example of the disease should be searched for primary growth, which in instances I have witnessed occurred in bronchus, pancreas, and rectum. Thrombophlebitis migrans may also herald in its recurrences over several years the ultimate development of thromboangiitis obliterans, just as the reverse process may be seen. In fact, a clear-cut distinction between these arterial and venous inflammatory states is no longer tenable.

Self-criticism is far more important than criticism of others, for, although we may learn by their mistakes, to criticize them directly or obliquely in the presence of colleagues or patients is surely the one unforgivable sin.

Criticism, writes Matthew Arnold, is a disinterested endeavour to learn and propagate the best that is known and thought in the world.

It is in that sense that I have endeavoured to pay tribute to William Croone.

DEVELOPMENT AND EVALUATION OF A POROUS SURGICAL DRESSING

BY

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This paper discusses the properties required of the ideal surgical dressing and describes the development, laboratory investigations, and clinical trials of a new dressing which largely meets the requirements.

Minor skin injuries result in a major national problem both in industry and in the home. It has been estimated that in this country nearly half a million skin injuries occur each day which require at least a first-aid dressing (Squire, 1951), but it is not possible to determine the working time lost and the inconvenience caused by lacerations, abrasions, incisions, puncture wounds, and small burns, particularly those minor injuries which occur and are treated in the home. The healing time of a wound is dependent on many factors, not the least of which is the type of dressing employed.

The functions of a dressing are to allow a coagulum to form and so prevent loss of tissue fluid, to protect the wound from further injury while it is healing, and to prevent infection.

When the epidermis is penetrated, damage of the dermal blood supply occurs, with loss of blood to a greater or less extent. Loss of tissue fluid by itself can result through damage of the deeper layers of the epidermis. Hartwell (1955) confirmed the view of Arey (1936) that the healing of human wounds depends primarily on the migration of the cellular elements of the epidermis across the damaged area, division of cells of the basal area of the epidermis being only of secondary importance. This migration of cells is dependent on a healthy dermal layer, free of infection and debris. Sepsis may ensue, following the introduction of organisms at the time of injury, by the passage of infected material through the dressing, during dressing procedures, and from the skin surrounding the wound. Dehydration of the protoplasm of the epidermal cells is essential for proper keratinization. It is important that wound dressings allow the evaporation of water vapour from the wound area. Beneath a dressing a considerable quantity of water can accumulate which arises (a) from the sweat glands of the skin surrounding the wound; (b) from normal insensible water vapour loss due to its transudation through the epidermis and from the dehydration of epidermal cells; and (c) from loss of tissue fluid from the wound itself.

Burch and Winsor (1944) showed that 1.63 g. of water is lost per square metre of the body surface every 10 minutes at a relative humidity of 50% and with an

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