illness is significant—being recorded in most of the patients—no reliance can be put upon a previous history of indigestion as excluding the probability of cancer in an elderly person. The chronic dyspeptic may become the subject of growth. Further, in every doubtful and unexplained case of loss of appetite or failing strength, early and rapid steps should be taken to exclude cancer of the stomach without waiting for anaemia and cachexia.

On reading and re-reading the histories, the conviction arises that in most of the patients more clinical care could lead to earlier diagnosis, and that a larger number of these patients with growths of the body or pylorus might have been treated surgically with success. The onset is generally appreciable, though it may be noted by others rather than by the patient himself. The fact comes out, and has been already mentioned, that in this series nearly a year was lost on the average. Most of this wasted time could be saved.

If we look at the problem as a whole it is clear that the biggest part of it is outside our consulting rooms, our clinics, laboratories, and our operating theatres. The hiatus, the leak, the reason for the continued enormous mortality, is at an earlier stage. It is therefore more important at the present time to direct the attention of the profession and the public to that stage. For not only do we doctors need to be stimulated in this respect. Many patients in this series had wasted time in going from one remedy to another and had not given their family doctor a fair chance. The public should know that it is more important to find out the cause of a chronic dyspepsia than to relieve it. We may go further, and say that it is wrong to treat indigestion in a middle-aged person without taking steps to exclude cancer; it is wrong to put cancer out of mind as long as possible; it is wrong to "watch the case." A patient with malignant growth may gain weight under dietetic treatment; a sense of security then arises which is false, for all the while his chance of cure is slipping away. Who can number the lives lost through treating an indigestion of unascertained nature or waiting for typical symptoms?

We should try in every case to form a diagnosis on the clinical evidence, but should lose no time in applying all other means at our disposal, and especially radiology. Early cancer can be recognized in the clinic, and the disease can be extirpated in a large number of early cases. It is possible, and we all hope, that better methods of detection may come to our aid in the future. But it is certain that much more can be done with the methods we have.

CONCLUSIONS.

The study of the early symptoms in a series of patients with cancer of the stomach shows that the onset of the disease was appreciable in most cases.

In two-thirds of the patients the symptoms dated back more than nine months, on the average an interval of a year or more having elapsed before a full investigation was made.

An analysis of the symptoms in order of frequency, and of the order in which they arose, shows that the most important early symptoms are fullness, discomfort or pain, not severe or continuous, but recurring persistently, and arising in a middle-aged or elderly person. The next symptoms in order of frequency and importance are lack of appetite, dislike of food, or nausea, with resulting loss of weight. Haemorrhage may be a first symptom.

The pain or discomfort is often relieved by food in cancer of the pylorus and of the body of the stomach.

Of the cardinal symptoms of cancer, wasting and tumour are late results, and pain is so variable that no security can be assumed from its absence. Anaemia is usual, though, in exceptional cases, the blood may be normal up to a short time before death.

When cancer arises in the subject of ulcer or other forms of dyspepsia there is often a recognizable change in the symptoms.

The earliest objective sign of cancer is probably local arrest of the wave in the stomach as shown by x rays.

This is demonstrated by the superposition of serial films taken at such an angle that the lesion is in profile. The sign is common to cancer, ulcer, and fixation by adhesion. A filling defect, or much induration, as shown by bending over of the shadow at the edge of an ulcer, is, as a rule, significant of cancer. The tests for achylia and occult blood are of great value.

It is wrong to treat indigestion for any length of time in a middle-aged person without taking steps to exclude cancer; indigestion is not a diagnosis.

If there is clinical and radiological suspicion of cancer, the risk of operation to make sure is much smaller than the risk of watching the case.

The fight against cancer is a fight for early diagnosis. If the delay between the onset of symptoms and investigation could be avoided, life could be saved or prolonged in a good proportion of cases. Further progress depends at present upon the profession and the public becoming alive to the fact that earlier diagnosis can and should be made.

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THE DERMATOLOGICAL INDICATIONS FOR SOUTTAR'S CAUTERY.*

BY

HENRY C. SEMON, M.D., M.R.C.P.,

PHYSICIAN FOR DISEASES OF THE SKIN, ROYAL NORTHERN HOSPITAL.

A TECHNICAL description of the apparatus and the principles which underlie the application of heat at an approximate temperature of 100°C. were published by Mr. H. S. Souttar in the *Lancet* of April 17th, 1927.

I have used the apparatus both in hospital and private work for over two years, and am convinced that in dermatology it is much to be preferred to diathermy, which I have entirely abandoned, for the following reasons. There is little to be feared from breakdowns, in my experience so frequent with the electrical instrument, which furthermore requires the assistance and control of an expert in the theatre. With the steam-heated cautery the penetration of heat is relatively slow (about one inch per minute), while that of the diathermy plant, which depends on the electrical resistance of tissues and the strength of current, is correspondingly variable, and almost impossible to estimate. The diathermy coagulum is tough and leathery in consistence, while the other, although firm, can easily be removed with a sharp spoon. This is a great advantage, for we are thereby enabled to determine when the unhealthy tissues have been destroyed and normal planes reached. In two cases of epithelioma—one on the cheek, in x-ray burn following the treatment of lupus, the other on the oral concha—I was enabled to avoid the disaster of complete penetration through mucous membrane in the one, and cartilage in the other, by keeping my finger on the distal side of the tissues exposed; and withdrawing the applicator when I began to feel the heat. Such a procedure would, of course, have been quite impossible with diathermy, with which I was once unfortunate enough to produce a permanent hole in a man's ear. In this case the epithelioma recurred, and was finally cured with Souttar's cautery and the sharp spoon.

The source of heat is a solid fuel, meta, which is cheap, and much safer than methylated spirit. The apparatus is therefore portable and quite independent of a lighting circuit. It must never be forgotten, however, that where there is a naked flame there is always the risk of a fire or an explosion, and ether narcosis should therefore be avoided whenever possible.

I have found local anaesthesia ideal in most cases, but where this is impracticable chloroform or intratracheal

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ether is perfectly safe, provided the boiler is placed two or three feet from the operating and anaesthetic tables. The disaster that overtook a case of malignant disease in the mouth, in which ether was exploded by the spark from a diathermy apparatus, will be fresh in your minds.

The only trouble I have experienced was a temporary flocking of the jet inside the applicator by chalky deposits from the tap-water used in the boiler. This might have been avoided by the substitution of distilled water or by inserting a small length of wire through the steam channels before lighting the meta. I would emphasize this precaution, for although the risk of an explosion is nullified by rubber connexions, which are immediately blown off when the pressure becomes excessive, this contrivance is not appreciated by the anaesthetist or the onlookers. Care must be taken to see that the water does not boil away during use, and I would advocate the fitting of a water gauge when new models are designed. The constancy of the temperature—about 100° C.—is well maintained, and there is never any charring, although the applicators are usually blackened by a very adherent crust of altered blood, which creates that impression and considerably reduces the heat conductivity. The efficiency of the apparatus in coagulating tissue and arresting haemorrhage is thereby reduced, and I have found it necessary to scrub off the crusts in a 1 in 40 carbolic solution from time to time during the operation. This crusting does not occur with diathermy, because the heat is actually generated in the tissues themselves, and is, in my opinion, the only advantage which that procedure can claim over Souttar's instrument, as applied to the skin.

The arrest of haemorrhage has already been mentioned, and although I must have opened into arteries the size of the facial on more than one occasion, there has never been any difficulty in controlling bleeding as long as the applicators are kept free from crusts. Secondary haemorrhage occurred very slightly in the case of the buccal epithelioma above mentioned after separation of the sloughs, but it must be discounted by the fact that the growth was not eradicated, and rapidly recurred *in situ*. It has since recurred again after radical surgical excision (July 9th, 1928).

One of the most striking features of the method is the complete absence in every case of consecutive pain. Not even when sloughs separated from a tongue which had been treated for leucoplakia and papillomata was it a disturbing factor, and the patient was on a liquid diet for a day or two only.

The outstanding indication for the treatment, in my experience, is epithelioma of all types, whenever it is accessible and irrespective of its situation. I have notes of fourteen such cases in my hospital and private practice. They include localizations on the pinna, the nose, the cheeks, the orbital angles and upper lid, the frontal bone, and the elbow. The diagnosis was confirmed in every case by the excision, just prior to the operation, of a small fragment for the microscope.

In the majority of these cases the cartilage was involved, thus rendering the application of x rays or radium relatively futile. In all these cases it has been my practice to combine the coagulation with the vigorous use of the sharp spoon, and to still the oozing thus engendered with renewed applications of the cautery, until the depth and appearance of the tissue exposed made it reasonably certain that a healthy plane had been reached, and that a recurrence was most unlikely.

My conjectures in this particular have been fortunate, for in only one case—advanced squamous epithelioma of the buccal mucous membrane, with large secondary sub-maxillary glands (referred to me by a surgical colleague as inoperable)—has a recurrence been brought to my notice. Since the above was written there has been a second case of recurrence. The patient in this case—a woman of 62—had a large rodent ulcer of perforating type involving the right malar and orbital regions. The zygoma was found fractured at the operation. After rapid healing the scar broke down and a recurrence became evident, from the region of the zygoma.

The method has proved extremely useful for lupus

verrucosus. In three such cases on the hands I previously macerated the horny materials with strong salicylic plasters for a few days, for the applicators had no effect whatever until this had been done, so complete is the heat-resisting property of keratin; it was then found easy to coagulate it, and I was much interested to note how the heat blackens the tuberculous nodule—probably by reason of its relative vascularity—and thus makes it stand out conspicuously against the white background of the scar tissue in which it lies. With the additional aid of a sharp spoon I was enabled to eradicate the nodules with such success and ease that up to late (about eighteen months) the first case so treated has not relapsed.

As might be expected from the poor resistance of the infecting organisms to heat, soft chancres and chancroids are exceedingly amenable to treatment by this means. In our venereal disease department at the Royal Northern Hospital we have cut short the extension of ulceration in two such cases, using only a local anaesthetic. For such cases I believe the cautery will ultimately prove the method of choice, for the bacillus of Ducey is notoriously susceptible to the effects of heat, which is a more local and a cleaner method of attack than the liquid caustics hitherto recommended.

Granuloma pyogenicum is another condition which is easily dealt with. The characteristic tendency to haemorrhage is immediately checked. I have cured one case of the intractable papillomatous type of leucoplakia of the tongue, which had been unsuccessfully treated with salvarsan and bismuth, etc., for a period of over five years. This case was published in the *Lancet* of October 8th, 1927. Another such case was improved; and in yet a third, in which the process had recurred time and again after operation on the mucous membrane of the vulva, eventually becoming carcinomatous, I was able to relieve the patient of most of her distressing symptoms.

In summarizing the type of case in which my experience has so far taught me to expect good results I would emphasize that the pathological tissue to be destroyed must be soft in character and free from a covering of horny or keratinized material. This excludes the common wart and verrucose tumours generally from the indications, unless previously macerated by plasters. The coagulability of the tissue is of prime importance, and for this reason it will be found exceedingly difficult to destroy fibromata and moles of a fibrous structure, which should be surgically excised.

In addition to the conditions I have already specified there are some which I have had no opportunity of submitting to the treatment, but which I believe would be amenable. These include the malignant pustule of anthrax, Delhi sore, and any condition in which a destructive with a simultaneous sterilizing action is required.

The after-treatment of the coagulum is exceedingly simple. In all cases an endeavour should be made to keep the wound dry until the slough separates. For this purpose the bismuth-formic-iodide powder (Mulford) and a sterile gauze dressing will be found useful, and when the second stage is reached and the raw surface is exposed I prefer ambrine to the use of boric or other ointments. If granulations are slow in appearing or of poor quality an occasional application of red lotion or pellidol (scarlet red) ointment is usually sufficient. On the whole there is very little trouble from complications, and so far I have met with only one case in which there was a tendency to a keloidal scar.

Conclusions.

The steam-heated cautery, especially when it is combined with the judicious use of the sharp spoon, is a most valuable destructive agent in dermatology. It introduces the new principle of coagulation at a constant temperature under conditions which are easily controlled. By its use the risks of haemorrhage and sepsis are greatly reduced, and the important factor of post-operative pain is entirely eliminated. These advantages, and the relative simplicity of construction and manipulation, render it the instrument of choice in the eradication of all malignant neoplasms, and in many of the more intractable types of cutaneous granulomata.