ON THE TEMPERATURE IN MALIGNANT DISEASE OF THE LIVER AND BILE PASSAGES.

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THIS paper is the outcome of an attempt to estimate the clinical value of the temperature chart in the diagnosis of some of the more obscure cases of hepatic and biliary disease, those, namely, in which the diagnosis lies between malignant disease, gall stones, and suppuration, either alone or in various combinations, and in which the decision for or against operation depends upon the exclusion or otherwise of malignant disease. In these cases pyrexia is generally a more or less prominent feature, and, to judge by the records on which the paper is based, as well as by my own experience, its presence not infrequently leads to the performance of operation in cases of malignant disease. The difficulty in diagnosis is, of course, increased by the close connexion of the three named conditions, and by the frequency with which they occur in combination.

The cases here analysed include all the instances of hepatic or biliary malignant disease admitted into the medical wards of the Birmingham General Hospital during the past twenty years, with the exception of those in which some complication has existed which would be likely in itself to give rise to pyrexia. I am indebted to the honorary physicians of the hospital for permission to make use of their case-books.

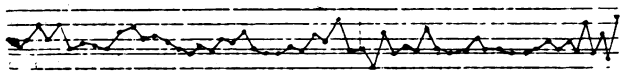
The cases of malignant disease are 52 in number, and in 13 the growth certainly arose from the gall bladder or bile ducts. Five cases were proved by *post-mortem* examination to be sarcomatous, and 4 others were believed to be of the same nature, but there is nothing in the temperature charts to make it necessary to distinguish them from the cases of carcinoma. Twenty-one of the patients left the hospital before death took place, and the diagnosis is here mostly a matter of opinion; but 3 patients previously underwent operation by which the nature of the case was established.

MALIGNANT DISEASE OF THE LIVER.

Fourteen, or 33.9 per cent., of the cases of uncomplicated malignant disease of the liver showed no abnormality of temperature beyond a tendency to drop below the normal level. This group includes 6 fatal cases.

The remaining 25, or 64.1 per cent., show some degree of pyrexia. In 15 the departure from the normal is not very great, the type being one of slight irregularity with occasional rises to 99°, 100°, or 100.4°, illustrated in Chart II* (Chart I and certain others of the series have

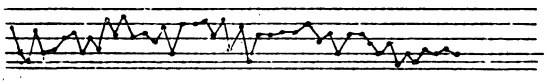
II.



been omitted in order to save space). This group includes 8 fatal cases, and, as a rule, the temperature remained of the same description to the end, only twice becoming subnormal before death.

The third group, illustrated by Chart III, taken from a

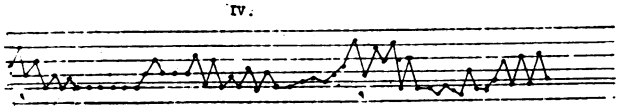
III.



fatal case of carcinoma, contains 3 cases, and shows merely an exaggeration of the preceding type, the evening rise often extending above 101°. The temperature is more or less continuous, though very irregular, and rarely falls below the normal.

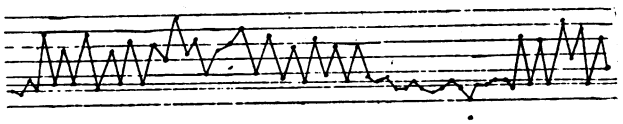
The fourth and last group contains 7 cases, and is illustrated in Charts IV to VIII. These cases not only show excursions of considerable magnitude, but most of them also a curious tendency towards alternations of periods of pyrexia and apyrexia, or periods of higher with lower temperature. Chart IV is merely a moderate

IV.



instance of this type. Chart V shows the same type in a more marked form, with considerable excursions, reaching once to 103°. It is taken from a fatal and uncomplicated

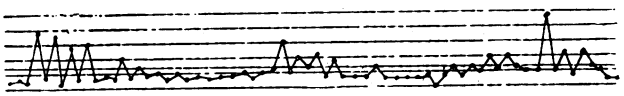
V.



case of sarcoma, in which there was a large growth in the right lobe of the liver. The gall bladder was normal, and contained unaltered bile.

Chart VI shows a series of short periods of pyrexia,

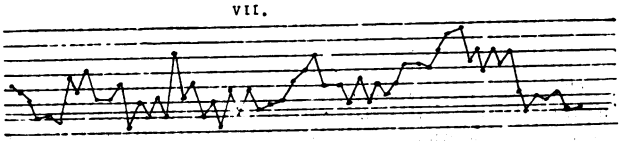
VI.



alternating with more prolonged apyrexial intervals. Only a small part of the chart is reproduced in the diagram, and the longest apyrexial intervals are not represented. The case ended fatally, and death was preceded by a longer period of intermittent temperature with low evening readings, but I have been unable to find the notes of the *post-mortem* examination.

Chart VII shows a very irregular temperature, yet there

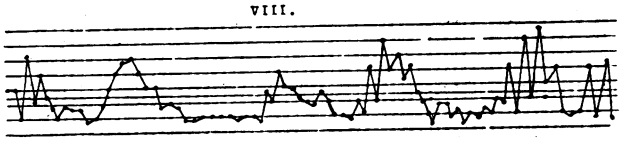
VII.



is some little tendency towards alternations of periods of higher and lower temperature, though the lower periods do not reach the normal level. It is taken from a case in which after death two hydatid cysts were found in the liver, as well as numerous sarcomatous growths in the liver, spleen, pancreas, and kidneys. The case is therefore not an uncomplicated instance of growth, and it is impossible to say to what extent the pyrexia is to be attributed to the presence of the cysts.

Chart VIII is a striking example of the regularity

VIII.



which may be presented in the alternations. It is part of the chart of a fatal case of carcinoma in which the liver was studded with nodules of growth, the primary focus being situated in the sigmoid flexure and presenting a necrotic centre. I may add that in all but one of these cases with alternating temperature, jaundice was absent, whilst in the single exception it was very slightly marked.

CARCINOMA OF GALL BLADDER AND BILE DUCTS.

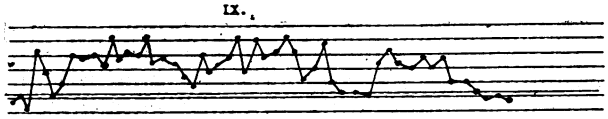
Of the 13 cases in which the growth arose from some part of the bile passages, 3, or 23.1 per cent., presented a normal temperature chart. Two of these ended fatally. In both, the gall bladder was involved in growth, and in 1 three stones were present and a perforation had occurred into a localized cavity.

The remaining 10 cases show abnormalities of temperature. Five ended in death, and 2 more were submitted to operation, apparently under the impression that they were cases of suppuration. The chief types are shown in Charts IX to XIII, and, in addition, 1 case presented a slight irregularity of temperature comparable to that depicted in Chart II. Three cases showed a more or less

*The normal level is marked by an additional line on each of the charts.

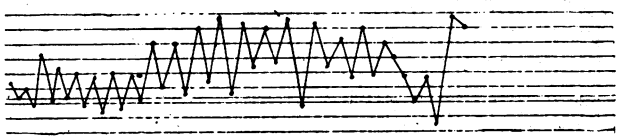
continuous temperature, of which Chart IX, ranging up to 102°, is an example. In this case perforation of the

IX.



gall bladder had again occurred, with the production of general peritonitis, marked on the chart by the final drop in the temperature. Chart X is of particular interest,

X.



first, because it shows large excursions of temperature, rising as high as 104°, and decidedly suggestive of suppuration; and, secondly, because the final rise at the end of the chart was accompanied by a rigor. *Post mortem*, the position of the gall bladder was occupied by an indurated mass of growth, above and below which was an impacted gall stone, and two other stones were present in the hepatic duct. The bile ducts were dilated, but there was no suppuration. The rigor was probably to be associated with the presence of an impacted stone, rather than with the growth, and it is not improbable that the wide range of temperature may depend upon the same explanation.

XI.

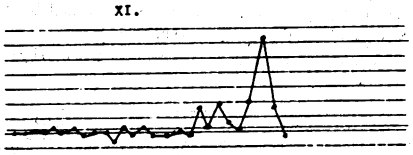
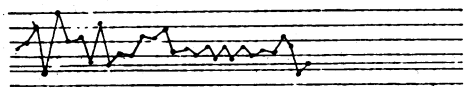


Chart XI is taken from one of two cases which showed a single high excursion. In the case represented by the chart the rise was again accompanied by a rigor; but an exploratory incision showed a liver studded with nodules of growth and no suppuration. The gall bladder was not distended, but it contained a single not impacted stone. The notes are silent as to the occurrence of rigors in the second of the two cases with a single rise of temperature. Here *post mortem* examination showed a mass of growth in the head of the pancreas, dilatation of the gall bladder, and minute secondary growths in the bile ducts, but no stone; and it would therefore appear that the rise of temperature must be attributed to the growth, probably that involving the bile ducts.

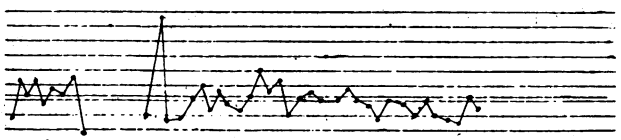
Three cases, either at operation or on the *post-mortem* table, presented a combination of growth and suppuration, and in two instances gall stones were also present. The temperature is represented in Charts XII and XIII. The

XII.



first is taken from a case of gall stones with carcinoma of the gall bladder and pericholecystic abscess. Death occurred five days after operation. The second—shown in the former of the two illustrations in Chart XIII—is

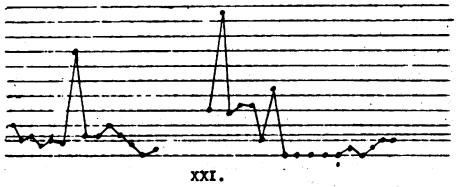
XIII.



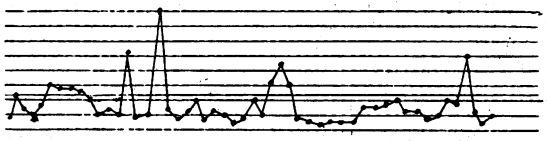
from a case of growth in which the gall bladder contained thin pus, and the temperature is by no means characteristic of suppuration. But in the third case—represented in the second of the two illustrations in Chart XIII—although there is as a rule but little irregularity, a sudden rise occurred to 103.6°, and this was accompanied by a rigor. The case ended fatally, and *post mortem* the gall bladder contained five large stones and a quantity of thin pus. The cystic duct was obliterated and surrounded by growth.

With the foregoing charts, exhibiting an isolated rise of temperature of considerable range, may be compared those of 3 cases of gall stones depicted in Charts XVIII and XXI. In the two cases represented in Chart XVIII

XVIII.

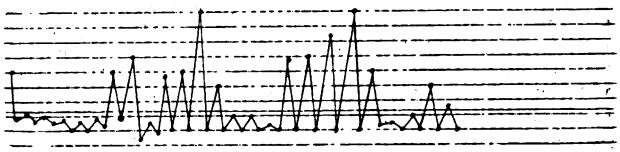


XXI.



the rise was associated with a definite attack of biliary colic, and in Chart XXI the chief excursions were the accompaniments of rigors. This would certainly point to the rise in Chart XI as due to the presence of the stone in the gall bladder; but it must be remembered that a similar rise took place in the second case mentioned in connexion with that chart, in which there were growths in the bile ducts but no calculi. The rise noted in Chart XIII, accompanied by a rigor, might have been due either to the presence of gall stones or to the coexisting suppuration. With these isolated rises of temperature may further be compared the recurrent excursions, often associated with rigors, noted in many cases of hepatic abscess and illustrated in Chart XV; but in none of the

XV.



11 cases of hepatic abscess which I have collected from the casebooks was there any example of the single isolated rise observed in connexion with the cases of gall stones and biliary growth.

CONCLUSIONS.

The chief results obtained from a study of the charts may be summarized as followed: Nearly two-thirds of the cases of malignant disease of the liver show some degree of pyrexia, at any rate in their later stages. The pyrexia is capable of attaining a considerable height, but rarely shows genuine intermissions, in the sense of subsidence of the morning temperature below the normal level. It is not uncommon to observe successive periods of fever alternating with apyrexial intervals, and sometimes these alternations may occur with great regularity. Rigors do not occur in uncomplicated cases of growth of the liver. Pyrexia seems to occur in a still larger proportion of cases of growth of the gall bladder and bile ducts, being recorded in more than three-quarters of the cases investigated. The condition is frequently complicated by the presence of gall stones, and it may be due to this fact that the pyrexia often reaches a greater height, with larger excursions, than is seen in the growth of the liver itself. Rigors apparently only occur when gall stones are present. An isolated high rise of temperature may, however, be observed in growth of the bile ducts in the absence of gall stones, but as a rule such a rise is suggestive of the presence of gall stones. The three cases of combined growth and suppuration do not present anything in the temperature charts to strongly suggest the presence of pus, though one case gave a single high rise of temperature. In hepatic abscess the charts may present little that is characteristic of suppuration, at any rate if observed only for a short time; but where high rises of temperature from a low level are noted these are likely to be repeated at frequent intervals, and thus to contrast with the isolated rises seen in cases of stones or growth. It is possible, however, that the examination of a larger number of cases might not support this statement.