EMPYEMA OF THE GALL-BLADDER DUE TO SPIRONEMA TYPHI

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EMPYEMA of the gall-bladder is a rare complication of typhoid fever and the case described below occurred in one of a series of twenty-seven typhoid cases in a small outbreak in a military hospital.

The infecting organism in twenty-one of these cases was of Phage type "N"; all twenty-seven cases having been patients (for various diseases) in the hospital between June, 15 and 25, 1948. Suspicion as to the source of the infection lay on two food handlers whose serum showed the presence of Vi antibodies but whose urine and feces were negative for Spironema Typhi.

History.—The patient, a soldier aged 20, had been admitted to the military hospital on June 20 with infective hepatitis and subsequently transferred to a convalescent depot. Whilst there he had suffered from severe headache and fever which lasted two days and then subsided.

On July 23 he was readmitted to the military hospital complaining of fever, epigastric pain and anorexia.

Clinical examination revealed no abnormality apart from a furred tongue, a tender liver and pyrexia of 100°F. and he was regarded as a potential typhoid fever.

Blood culture was negative but a Widal test on July 24 showed positive agglutination against S. typhi Type "O" in a titre of 1/125, his previous T.A.B. inoculation having been carried out one year before.

On July 29 he was feeling fairly well again but at 7 p.m. on the 30th he had severe upper abdominal pain causing dyspnæa and making movement in his bed very difficult. There was board-like rigidity of his upper abdomen, liver dullness was not diminished, bowel sounds were absent and his recto-vesical pouch was very tender on rectal examination. It was not possible to define the liver edge on account of the muscle guarding.

A differential diagnosis was made of a perforated typhoid ulcer, a perforated duodenal ulcer or a very acute cholecystitis and operation was advised forthwith.

Laparotomy was undertaken at 2 a.m. on July 31 using a right upper paramedian incision and free fluid presented on opening the peritoneum. The gall-bladder was under tension and was acutely inflamed and after opening the viscus a large mixed type of gall-stone some 3/4 in. diameter was found obstructing the cystic duct. Prior to opening, the gall-bladder was aspirated and thick pus withdrawn.

Cholecystectomy was performed fairly easily, the appendix which was normal was removed and the abdomen closed making provision for drainage via a stab wound in the flank.

Convalescence was disturbed for forty-eight hours but after that time the patient improved rapidly, his wound ceasing to drain by August 10 and he was evacuated to England on August 29 by which time it had been ascertained that he was not a carrier of S. typhi.

Culture of the gall-bladder wall, pus from the empyema and bile from the drainage tube yielded a pure growth of S. typhi phage type "N"
DISCUSSION

Cholelithiasis has usually been considered to be a disease of the 3rd or 4th decades, but Potter [1] reports 226 cases of gall-bladder disease in patients under 15, 140 of whom had calculi; C. Bearse [2] found that 20 per cent of operations for gall-stones were performed in patients under 30, 5 per cent of whom were under twenty years of age. The size of the stone in R. M.'s case suggests his gall-bladder had been pathological for some considerable time.

Although S. typhi is commonly present in the gall-bladder during the course of typhoid fever and often afterwards for varying periods, actual acute cholecystitis does not often occur and when it does it is usually in young adults. Anderson [3] considers gall-stones are rare in the acute stage of typhoid but it is reasonable to suppose that if stones are there acute cholecystitis would be more likely to supervene.

A search of the literature of the last thirty years has yielded very little information on the incidence of acute cholecystitis in cases of typhoid but, in 1934 Hillemand, Mezard and Valoise [4] described 5 cases, Potter [1] found 16 cases due to S. typhi, the cholecystitis being identified clinically in 1 case, by operation in 6 and by autopsy in 9. More information is to be found earlier in the century and Camac [5] collected 115 cases of typhoid cholecystitis, 4 of whom had gall-stones also, whilst other relevant figures are given in the table below:

<table>
<thead>
<tr>
<th>Author</th>
<th>Cases of enteric fever</th>
<th>Cases of cholecystitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stewart [6]</td>
<td>620</td>
<td>7</td>
</tr>
<tr>
<td>Ashurst [7]</td>
<td>2,864</td>
<td>18</td>
</tr>
<tr>
<td>M'Crae [8]</td>
<td>1,500</td>
<td>19</td>
</tr>
<tr>
<td>S. African Hospital (Boer War 1900–01)</td>
<td>1,016</td>
<td>1</td>
</tr>
</tbody>
</table>

Thus in 6,000 cases of enteric fever only 45 were accompanied by acute inflammation of the gall-bladder. It is even more rare to find suppuration occurring in the acutely inflamed gall-bladder; S. de Renzi [9] described a case of suppurative cholecystitis, cholangitis and peritonitis which complicated typhoid in a child of 14 years, thirty days after the onset of the fever and Vincent [10] notes a case of a patient aged 52 who had been a recognized "carrier" for twenty-six years who at operation had an empyema of the gall-bladder with multiple stones; Fisher in 1924 found an empyema at the autopsy on a typhoid patient of 11 years whilst Hoelscher [11] performing autopsies on 2,000 fatal cases of enteric fever in Munich found pus in the gall-bladder in only 5 cases.

These figures give some idea of the infrequency with which suppurative cholecystitis does occur in acute typhoid fever though more modern methods of clinical observation and diagnosis might yield a higher rate of incidence if it does in fact exist.
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During the last twenty-five years the wisdom of removing acutely inflamed gall-bladders has often been discussed in the British and American Press and every case must be judged on its merits, but the facts should be born in mind that 20 per cent of cases go on to suppuration and 25 per cent to gangrene if they are treated conservatively. When, however, the special case of typhoid cholecystitis is examined further the important question of chronic "carrier" elimination arises and cholecystectomy is pre-eminently useful in curing these cases.

Vogelsang and Boe [12] have investigated 360 cases of typhoid and 1,027 cases of paratyphoid B convalescents between 1920 and 1947 using the method of culturing bile obtained by duodenal intubation and they have found a much higher percentage of carriers remain after enteric than had been heretofore realized, the figure for typhoid being raised from 3.7 per cent to 11.5 per cent and for para B, from 3.6 per cent to 11.8 per cent.

They also found that 11 per cent of cases were temporary (i.e. up to three months after defervescence) carriers and 3.3 per cent were for life, such state of affairs being more common in middle-aged females associated with chronic cholecystitis and lithiasis.

They cured 14 out of 15 cases by removal of the gall-bladder and Saphiro [13] cured 75 per cent of his cases surgically but only 7.6 per cent by medical measures alone.

Conclusions

1. Cholecystectomy is a recognized procedure in the treatment of acute cholecystitis.

2. When the latter condition occurs in the acute or convalescent stage of typhoid fever, the conservative measures should be the treatment of choice but if the clinical picture shows any sign of pus formation in the gall-bladder, laparotomy is essential and one need have no hesitation in removing the affected viscus.

3. Though acute typhoid cholecystitis cannot be regarded as an indication for surgery in the acute stage of enteric fever, such an operation is a means of ensuring that the primary site for retention of S. typhi is removed and temporary or permanent carrier states eliminated.

Summary

1. The case described is an example of the very rare complication of typhoid fever, suppurative cholecystitis.

2. Whilst it was suspected that the patient might well be suffering from typhoid, the clinical findings were inconclusive and it was only after laparotomy that the true diagnosis was obtained.

3. Stone formation in the gall-bladder of this man of 20 years of age suggests a pathological process of long duration and there is little doubt that the presence of the stone predisposed to acute cholecystitis and, by reason
of its location at the neck of the gall-bladder, led to a suppurative, obstructive type of cholecystitis with empyema formation.

(4) Cholecystectomy was performed in the acute phase because by so doing a grossly diseased viscus was removed and at the same time it eliminated the possibility of carrier formation.

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