

# REVIEWS

THE DIAGNOSIS and relief of surgical jaundice is important particularly if we bare in mind the morbidity and the mortality which follow surgery. Both rise with the degree and the duration of jaundice (1). The hazards of diagnostic laparotomy are well established in such cases (2). The standard IVC does not yield the expected information so long as the level of serum bilirubin exceeds 2.0 mg/100 ml or 70 mmol/L as the radio-opaque dye will not be sufficiently excreted by the lire to give satisfactory definition of the biliary system (3). At the start, PTC was carried out using a sheathed needle (4). But this was invariably complicated by biliary leakage and haemorrhage.

The Japanese workers in the Chiba University in 1969 described a new technique using a fine flexible needle (5). The use of this method gives a more reliable diagnosis with less chances of biliary leakage by minimising the extent of trauma to the liver (6). The success rate with this technique to outline the dilated intrahepatic ducts reaching 95% though for the non dilated ducts it has been 25% only (7).

## SUMMARY

The PTC using this technique was performed in a series of five patients who were admitted with jaundice. The ductal system was successfully outlined in four of those patients with dilated ducts. The technique failed with the fifth patient after several attempts.

## The Use of Fine Needle Percutaneous Transhepatic Cholangiogram in the Diagnosis of Jaundice

By Dr. A.W.M. Abdul Wahab \*

### METHOD

The Chiba needle is a long 15 — 17 cm thin, flexible needle with central stylet. The examination itself is carried out in the X-ray department, and it is a team work involving the Radiologists and performed under fluoroscopic control. An operating theatre must be reserved in case the necessity for urgent laparotomy arises during next 24 hours. The land-mark is xiphisternum which is identified on the image intensifier by using a small metal object.

While the patient is on the table and in a supine position, 10-20 mg of diazepam is given slowly I.V. Shortly after this, the 7th or 8th intercostal space is infiltrated with

5 — 10 mls of 1% plain lignocaine in the mid axillary line. During apnoea, the needle is introduced in the said space and directed in a horizontal plane towards the xiphisternum and is pushed gently to its end.

The patient is then allowed to breath normally and the stylet is now removed. A polythene catheter is attached to the needle and a syringe containing 50 mls of urografin 60 is connected to the polythene tube (50 — 100 mls can be used) while slowly withdrawing the needle, the contrast medium is injected under the flourosopic control, if a distended bile duct is encountered the contrast medium will easily delineate it. The position of the patient on the table can be changed so as to get a better filling of the ducts. Up to five insertions must be made before failure is admitted. Should the needle enter a blood vessel the dye will be washed away quite rapidly.

### PATIENTS

Five patients were studied; all were males aged 55 — 65 years; all were icteric. Routine blood investigations, LFT, coagulation screen and Australia antigen were done for all the patients. 10 mg of Vitamin K I.M. was given to each patient following admission. On the day of examination 120 mg gentimicin was given I.V. to each patient 30 — 60 min. prior to the study followed by 80 mg I.V. 8 hourly for 24 hours (8).

\* Consultant Surgeon /  
Urologist, Surgical Department,  
Salmaniya Medical Centre.

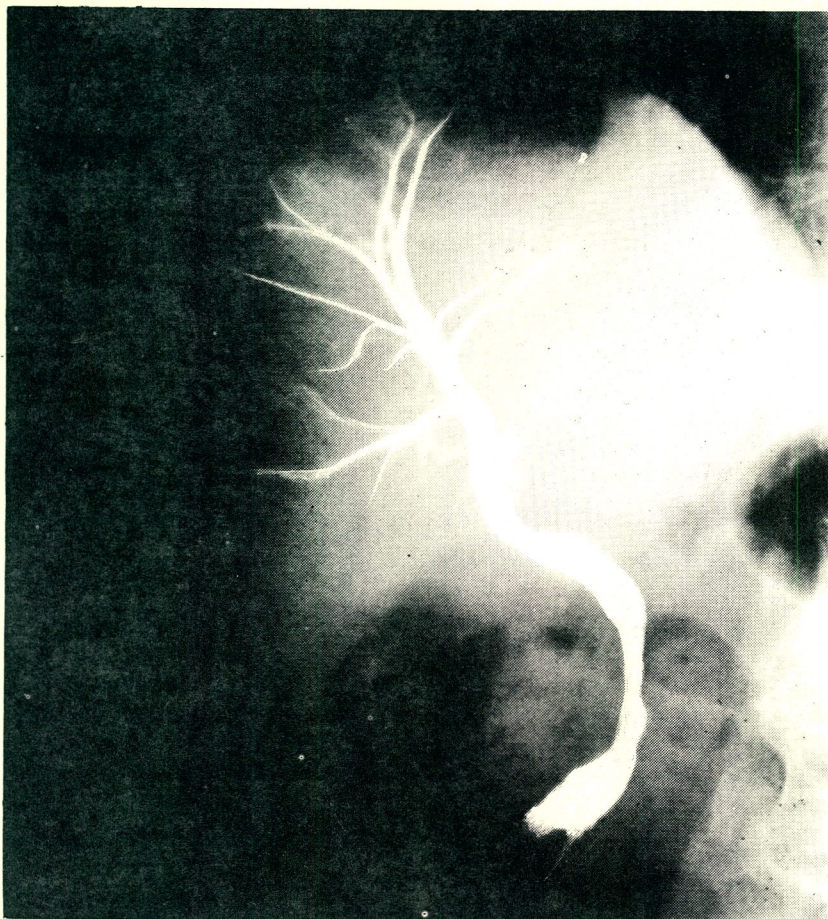


Fig. 1 PTC in 65 year old male—The fine needle is seen in the right hepatic tributary.

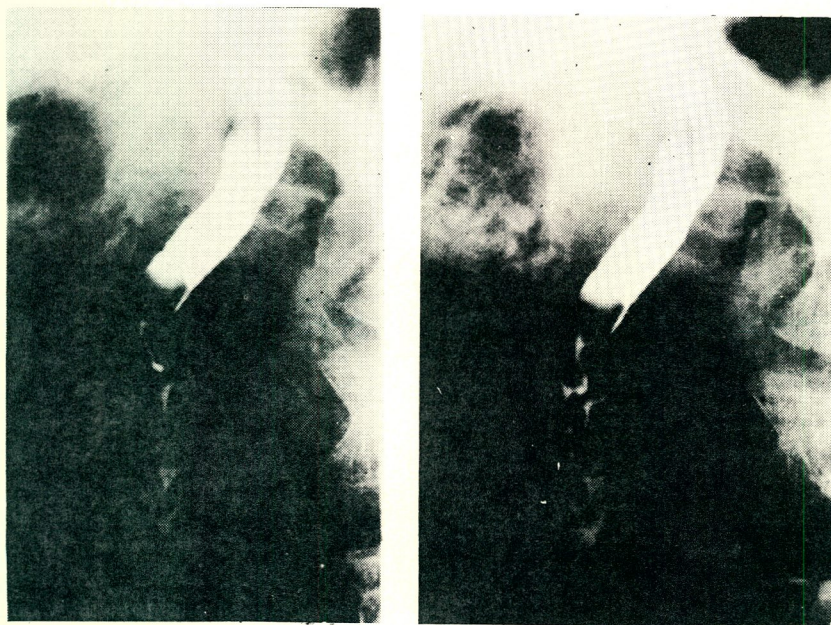


Fig. 2 PTC in the same patient showing a stone impacted in the lower end of the CBD which is dilated. The long cystic duct is also dilated and is joined to the CBD on the left side. A second stone is seen impacted in the Hartmann's pouch.

## RESULTS

PTC outlined the biliary tree in four out of five cases with jaundice, in all the ducts were found to be dilated. Three of the patients had stones in the CBD and one had ampullary carcinoma. The techniques had failed to outline the bile ducts in one patient who was found to have biliary cirrhosis.

Diagnosis	No. of patients	Operated
Stone CBD	3	3
Carcinoma of ampulla	1	1
Primary biliary cirrhosis	1	1*

\*PTC carried out but unsuccessful  
All patients were Jaundiced.

PTC outlined the dilated biliary passages in 80% of five patients who were studied. The picture being clear and showing the exact site and the probable nature of obstruction. The diagnosis being confirmed at laparotomy which was carried out shortly after the procedure. No drainage was attempted using this technique.

## DISCUSSION

In complete unrelenting jaundice which lasts more than a week the cause is probably a lesion outside the liver and could be amenable to surgery. In complete obstruction no bilirubin gets through into the intestine and no urobilinogen will be formed, so there is none to be reabsorbed and excreted via the kidney, hence examination of every specimen of urine for urobilinogen is a good way to detect completeness of obstruction. Since the recent

improvements in the technique of PTC it is no longer necessary to proceed to laparotomy on the evidence of lack of urobilinogen alone.

The difficulty in diagnosing the cause of jaundice poses insuperable problems for the surgeon and this procedure is of paramount importance in helping to diagnose the cause by demonstrating the pathological anatomy in these cases.

Percutaneous cholangiography by puncturing the intrahepatic ducts was described as early as 1937 by Huard Do-Xnon-Hop. The first successful technique however was reported by Carter and Saypol in 1952.

Complications which were reported in earlier cases were mainly due to biliary leakage and haemorrhage, and failure to operate following the successful demonstration. However since the introduction of the flexible needle the complication has been reduced to a negligible rate.

In a study of 20 cases by Blumgart et al there was one case of death due to E. Coli Septicaemia in a patient who suffered from cholangitis. PTC showed Carcinoma of gall bladder no prophylactic antibiotic was used for this patient. In no case was there any evidence of continued haemorrhage or bile leakage and the technique has proved to be safe, accurate and reliable.

The rate of success in Blumgart series has been 100% in patients with dilated ducts and 73% in those without dilation. Yet failure may occur in patients with prolonged obstruction (more than 6 months) who may have sclerosed intra hepatic ducts or those who had previous surgery, due to scarred tissue (9).

Chiba needle is now widely used

and has superseded other forms of needles in many centres. It has also proved useful in cases of chronic pancreatitis with intermittent biliary obstruction. It has been helpful in the differential diagnosis of Jaundice due to intra-hepatic and extra-hepatic biliary obstruction due to conditions such as stones, carcinoma or strictures.

PTC is of considerable value in excluding malignant diseases of pancreas, bile ducts or liver though PTC alone should not be relied upon in making decision whether to operate upon a jaundiced patient (10).

Using the technique urgent laparotomy may rarely be required though it has been suggested that when an obstructed biliary duct has been demonstrated at PTC even with the fine needle the operation should be undertaken in few hours (11).

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