

This Week's Citation Classic

Okuda K, Tanikawa K, Emura T, Kuratomi S, Jinnouchi S, Urabe K, Sumikoshi T, Kanda Y, Fukuyama Y, Musha H, Mori H, Shimokawa Y, Yakushiji F & Matsuura Y. Nonsurgical, percutaneous transhepatic cholangiography—diagnostic significance in medical problems of the liver. *Amer. J. Digest. Dis. New Ser.* 19:21-36, 1974.
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Percutaneous transhepatic cholangiography was carried out from the right flank on 314 patients using a very thin needle. Intrahepatic bile ducts were visualized in 67.5 percent of those who had no to minimal dilation. Practically no complication was encountered in patients with medical problems of the liver. [The SCI® indicates that this paper has been cited in over 285 publications since 1974.]

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"Percutaneous transhepatic cholangiography had been carried out for the diagnosis of obstructive jaundice by surgeons who could immediately open the abdomen of the patient for control of bile leak which was inevitable because of the size of the needle used.^{1,2} In those days, direct cholangiography could not be thought of as a medical procedure. One group of surgeons at Chiba University Hospital began puncturing intrahepatic bile ducts around 1966.³ Various factors determined success or failure in entering intrahepatic bile ducts for diagnostic cholangiograms. Our group at the first department of medicine at the same hospital improved their technique further by selecting the midaxillary line for entry and applying a positive pressure on the syringe containing contrast medium instead of suctioning bile in search of an intrahepatic bile duct.⁴ The needle should be as thin as possible without losing its aiming capability. These simple ideas proved very successful, and changed percutaneous cholangiography to a nonsurgical technique. With the help of my previous students at affiliated hospitals, I could gather data on more than 300 patients within a short period of time. Although this technique had already spread throughout Japan at the time I wrote the

paper, I thought that the technique was worth describing in an English-language journal. While preparing the manuscript, I felt that the thin needle with our specification should be called the 'Chiba needle' because a number of people at Chiba University Hospital had been involved in its development.

"The reaction was overwhelming and requests poured in for sample needles. I sent out several hundred needles, two for each request. Within a year or two, reports began appearing at various meetings throughout the world, some of them calling the needle 'Okuda's needle.' Reprint requests also poured in. I understand that the needles are now available in a disposable form in the US. Reynolds and his group at Los Angeles used the same needle for measuring intrahepatic portal vein pressure.⁵ Since this technique was so widely used in the US, with some people starting without experience and with a loose selection of patients, complications became frequent. Mary Jean Kreek had to conduct a national survey on the frequency of complications. In due time, endoscopic cholangiography became popular, and the percutaneous approach has yielded considerably to the former in the indication and selection of patients.

"The reason for this paper being cited very often is that many radiologists and gastroenterologists began using this needle and technique, and reported their experiences in the past eight years or so. They had to quote our paper in their publications, and many of them acknowledged my supply of the needles to them.

"Perhaps because of this paper, I became known in gastroenterology and hepatology throughout the world. I was sometimes compared to Menghini, from Italy, who invented a one-second biopsy needle.⁶ It may have contributed indirectly to my current position as vice president of the Organisation Mondiale de Gastro-Enterologie (OMGE), and my past presidency of the International Association for the Study of the Liver (IASL)."

1. **Nurick A W, Patey D H & Whiteside D G.** Percutaneous transhepatic cholangiography in the diagnosis of obstructive jaundice. *Brit. J. Surg.* 41:27-30, 1953.
2. **Kidd H A.** Percutaneous transhepatic cholangiography. *Arch. Surg.* 72:262-8, 1956.
3. **Ueno K.** Systematic investigation of puncture for percutaneous cholecystocholangiography. *Jpn. J. Gastroenterol.* 63:520-37, 1966. (In Japanese.)
4. **Okuda K.** Thin needle percutaneous transhepatic cholangiography—historical review. (Editorial.) *Endoscopy* 12:2-7, 1980.
5. **Boyer T D, Triger D R, Horikawa M, Redeker A G & Reynolds T B.** Direct transhepatic measurement of portal vein pressure using a thin needle. Comparison with wedged hepatic vein pressure. *Gastroenterology* 72:584-9, 1977.
6. **Menghini G.** One-second biopsy of the liver—problems of its clinical application. *N. Engl. J. Med.* 283:582-5, 1970.