

# CHOLANGITIS IS ASSOCIATED WITH LIVER FIBROSIS IN CHOLEDOCHAL CYST PATIENTS

Tsz Ling Venus Kum, Fanny Yeung, Ho Yu Chung, Kak Yuen Kenneth Wong

Division of Paediatric Surgery, Department of Surgery, The University of Hong Kong, Queen Mary Hospital, Hong Kong, Hong Kong

## Abstract

### Purpose

Most choledochal cyst patients carry favourable prognosis post-surgery, a minority may experience liver fibrosis. This study explores the use of liver transient elastography to monitor for any progression of liver fibrosis and evaluate potential risk factors.

### Method

Seventy patients with choledochal cyst received surgery between 2000-2022. Operative details, biochemical profiles, episodes of cholangitis, and contrast studies for biliary reflux were evaluated. A single experienced operator performed liver stiffness measurements using FibroScan for all patients, with 6.7 kilopascal (kPa) taken as the upper limit of normal.

### Results

At least one set of liver fibrosis score by FibroScan was obtained from 42 patients, with initial measurement at median 71 months post-operatively. Median fibrosis score was 4.26 kPa (IQR 3.5-5.3 kPa). Four patients (9.5%) had measurements compatible with fibrosis (6.9-10.8 kPa) and post-operative episodes of cholangitis (50% vs 7.9%,  $p < 0.001$ ) were found to be associated.

The liver was found to be more stiff in patients with reflux into biliary tree upon contrast studies (3.87 vs 4.89,  $p = 0.049$ ) and those with post-operative episodes of cholangitis (4.38 vs 7.47,  $p < 0.01$ ). Comparable liver stiffness scores were achieved in hepaticoduodenostomy and hepaticojejunostomy groups (3.94 vs 4.93,  $p = 0.129$ ). No significant correlation was found with the age of operation ( $p = 0.278$ ).

Twelve patients who demonstrated fibrotic features in intraoperative liver biopsy showed subsequent recovery with comparable fibrosis scores as those with no previous histological fibrosis (4.26 vs 4.99,  $p = 0.143$ ). Serial liver stiffness measurements were performed for seventeen patients at a mean of 45 months, none has shown progression to liver fibrosis.

### Conclusion

Cholangitis imposes higher risk of fibrosis in choledochal cyst patients as evidenced by the detrimental effect on liver stiffness. Effort should be made to prevent cholangitis. Serial testing of transient liver elastography can act as a non-invasive tool to closely monitor for any progression to liver fibrosis.