

# TECHNIQUES FOR DIFFICULT CASES OF INTRAOPERATIVE CHOLANGIOGRAPHY IN LAPAROSCOPIC SURGERY



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## Introduction

A transcystic drainage tube (**C-tube**) is placed when bile duct drainage is required in patients undergoing laparoscopic choledocholithotomy or any other laparoscopic surgeries. However, the insertion of **C-tube** is often difficult, especially in patients with a short or narrow cystic duct. Here, we present our surgical technique for **C-tube** insertion.

## Adaptation of C-tube impalement

✓ **Bile drainage** (extra fistula)

Representative Disease  
•cholecystectomy  
•choledocholithotomy  
•hepatectomy

## Usefulness of C-tube

- Bile duct decompression and drainage after surgery
- Cholangiography from C-tube at anytime
- Possible early removal attribute to elastic thread
- Treatment of residual stone with using of C-tube

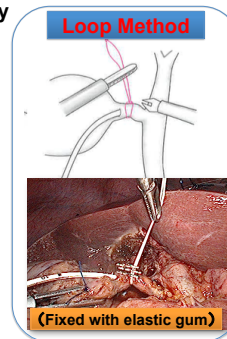
## Instrument of C-tube



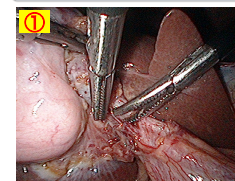
C-tube Kit (6Fr)  
(SUMITOMO BAKELITE CO.,LTD.)



ATOM-tube (4Fr)  
(ATOM MEDICAL)



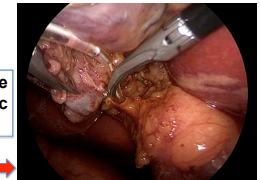
## Method of C-tube placement



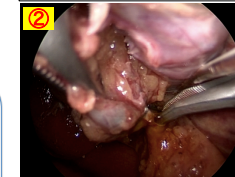
← Trimming surround the cystic duct

✓ Remove a lymphatic vessel and the connective tissue surround the cystic duct

Insert C-tube in cystic duct →



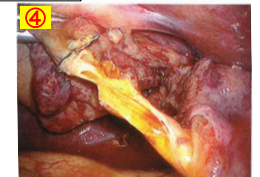
## Case of difficulty in C-tube insertion (with a narrow cystic duct)



✓ Incised cystic duct



✓ Insert C-tube using guide wire



✓ Cut the cystic duct longitudinally

## Change from C-tube (6Fr) to ATOM-tube (4Fr)

## Conclusions

This surgical procedure has been successful in all cases, so far. **C-tube** insertion is a basic and an essential skill for treating patients who require bile duct drainage.

Conflict of interest None.