Single port laparoscopic cholecystectomy with 2 fine needle forceps

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Introduction 1

- Single port surgery (SPS) has been reported to reduce the abdominal wall damages.
- To reduce the length of umbilical scar and to keep the triangulation, we use 2 additional fine needle forceps (plus two puncture = PTP-SPS) for laparoscopic cholecystectomy (LC).

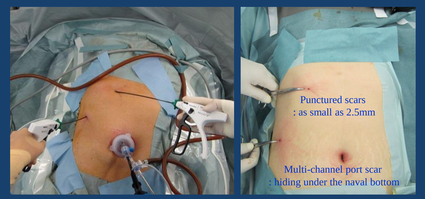
From 2005 to 2011

- Reduced port surgery (RP)
  ⇒one 11mm port, one 5mm port and two fine needle forceps



From 2012 to now

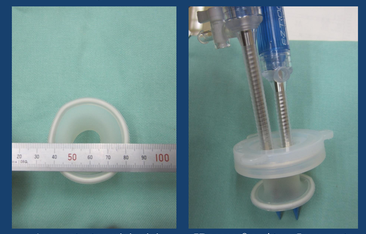
Plus two punctures SPS (PTP-SPS)
⇒an umbilical multi-channel port
and 2 additional 2.4mm fine needle instruments



Operation techniques

- Two 5mm ports (1 for the scope and 1 for the forceps) through an umbilical multi-channel port.
- Two additional 2.4mm fine needle instruments are pierced on the right side of the lower end of sternum and on the right side of abdomen.
- A 5mm flexible scope allows us to keep the triangular formation easily.

Tools (ports) for naval incision



Lap protector mini-mini

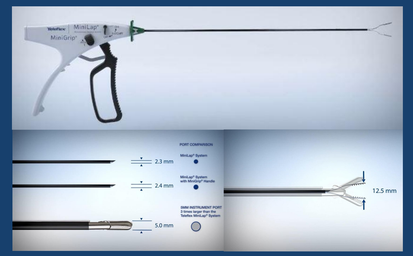
EZ access® and two 5mm ports

A needle device, Endo Relief®

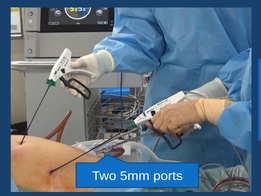




A needle device, Mini Lap®

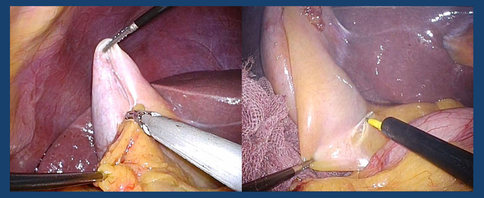


Operation technique ①

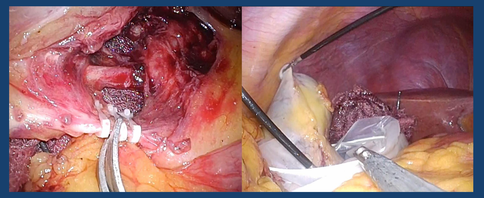


A 5mm flexible scope allowed us to keep the triangular formation

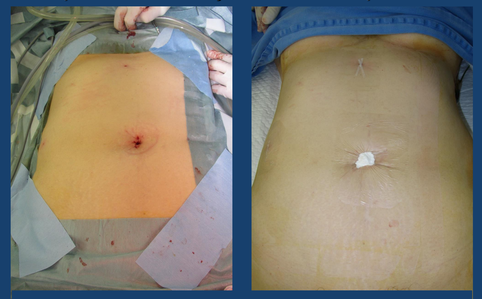
Operation technique ②



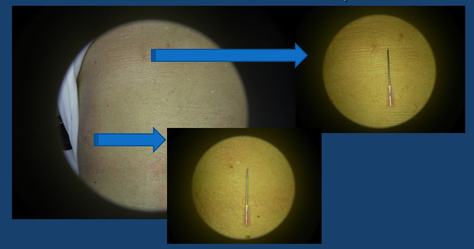
Operation technique ③



Operation scar : just after the operation



Needle scar : one week after operation



Comparison of the operation time

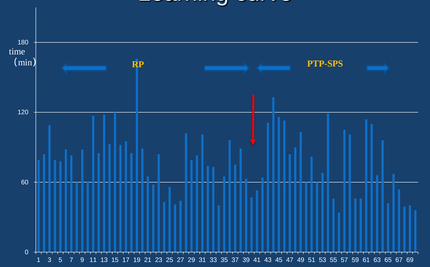
	RP	PTP-SPS	p
Number of cases	161	758	
Median oparation time (min)	83（28-227）	84（26-191）	0.62
Cases with additional ports	10	95	0.42
Operation time （mean±SD）	89.7±31.5	90.2±39.6	
Cases with additional ports		130.2±39.1	*

* p=0.04

Complications

	RP	PTP-SPS
During the operation		
bleeding	1	1
damage of common bile duct	1	3
conversion to open method	2	7
After the operation		
pulmonary infarction	1	1
bile leakage	1	3
bleeding	0	0
intraabdominal abscess	0	0
incisional hernia	1	3

Learning curve



No learning curve changing over from RP to PTP-SPS method

Summery

- There were no differences between PTP-SPS and RP in operation time and complications.
- The umbilical operation scars and the pierced needle instrument scars became gradually invisible within 1 or 2 months.

Conclusion

- PTP-SPS may become the standard approach as less invasive laparoscopic cholecystectomy.