



2 Year Experience of Laparoscopic Inguinal Hernia Repair (TAPP) with Covid-19 Pandemic - A Debut at Non-Hernia Centre (HKL)

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Hernia surgery has always been one of the commonest surgeries performed worldwide². Laparoscopic approach has been the preferred mode of surgical intervention in recent times^{1,2,3} and multiple studies have been done to advocate and promote this method among surgeons. Here, we present a twoyear summary of inguinal hernia repairs via TAPP approach despite Covid-19 pandemic. Our results in a non-hernia specialized centre reveals promising outcomes advocating TAPP among new and junior surgeons.

Keywords: Laparoscopic hernia repair; Inguinal hernia; TAPP.

1. INTRODUCTION

Inguinal hernia repair has undergone a series of transformation since the early days. It was pioneered by reinforcement of the anterior wall of the inguinal canal and tightening of the external inguinal ring (Stromayr 1559, Purmann 1694, Czerny 1877), followed by reinforcement of the posterior wall of the inguinal canal and the tightening of the internal inguinal ring (Bassini 1889, Lotheissen 1898, McVay 1942, Shouldice 1945). It was in 1987 that Lichtenstein technique of tension free mesh gained popularity before introduction of laparoscopic repair in 1990 [1]. Laparoscopic hernia repair was first described in 1993 by McKernon & Laws.

The steep learning curve and difficulties due to unfamiliarity make many shy away from laparoscopic approach for hernia repair. In our center, open hernioplasty was the approach of choice before embarking on laparoscopic approach from 2019. We present a 2-year single center experience of laparoscopic inguinal hernia repairs in the midst of Covid-19 pandemic. To the best of our knowledge, this is the first report of a series of laparoscopic inguinal hernia repairs from the region.

2. METHODS

A retrospective study of patients who underwent inguinal hernia repair at Hospital Kuala Lumpur

(HKL) between January 2019 to December 2020. We analyzed a total of 44 inguinal hernias in 33 patients (11 bilateral, 22 unilateral). The collected clinical data included laterality of the hernia, recurrence, occurrence of post-operative collection, and operative time. The patients were diagnosed clinically by history and clinical examination. Choice of surgical approach was mainly based on surgeon preference. Patients were discharged once they had evidence of bowel opening (passing flatus), tolerated orally and had good pain control. All patients' particulars were undisclosed during the analysis of this study.

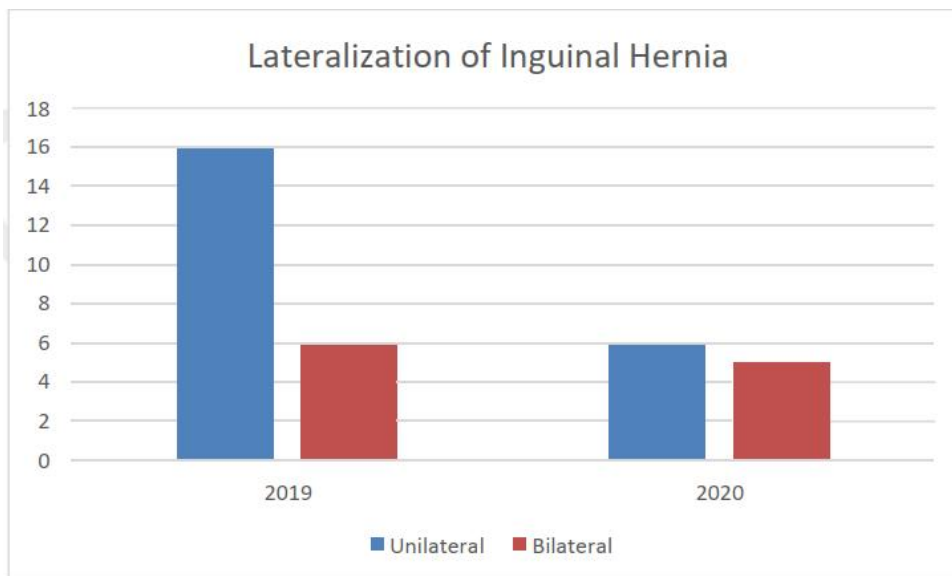
2.1 Statistical Analysis

Categorical data were presented as frequencies. Comparisons between the data of 2019 and 2020 were made.

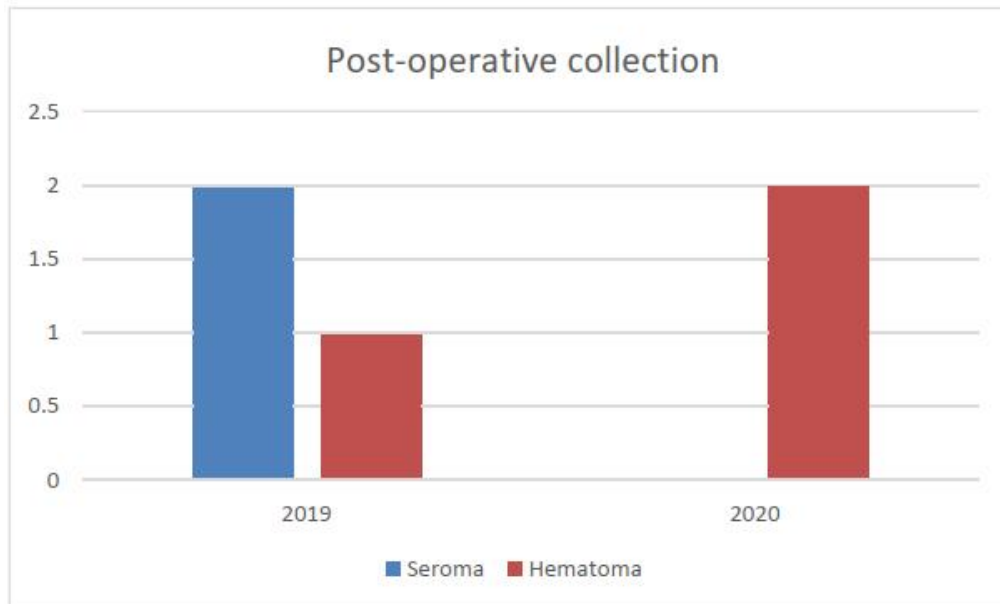
3. RESULTS

A total of 44 inguinal hernias in 33 patients were operated over 2 years (22 in 2019 and 11 in 2020). Since the institution had just embarked on laparoscopic repair, data were further classified based on the years.

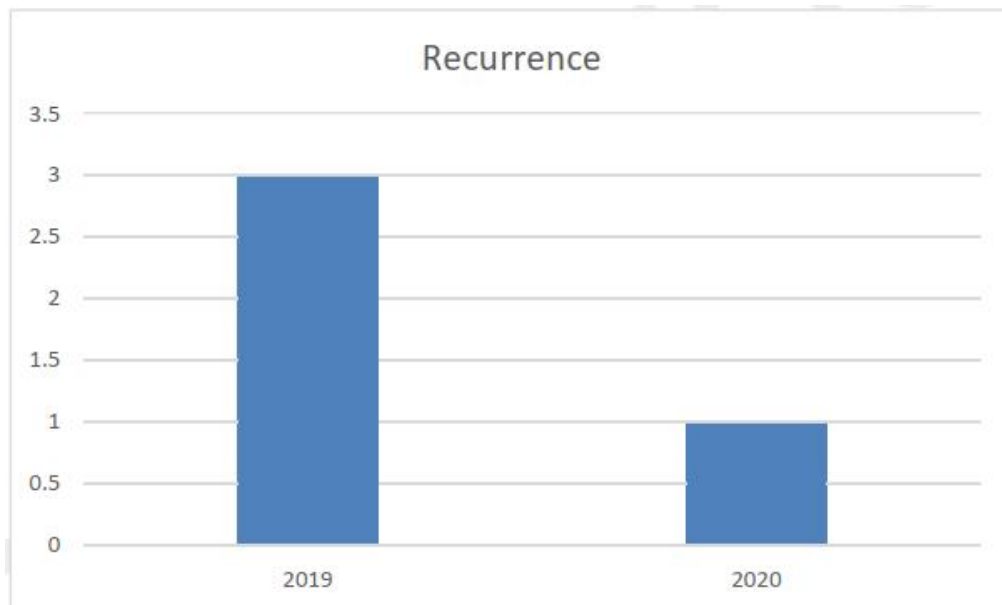
Most of our cases were elective surgeries except for 2 inguinal hernia repairs that were done due to an incidental finding during an emergency laparoscopic surgery for another pathology.



Bar chart 1.0 Lateralization of inguinal hernia



Bar chart 1.1 Incidence of post-operative collection



Bar chart 1.3 Incidence of recurrence

The 50% reduction in cases is due to the closure of operating theatre for elective cases in view of Covid-19 pandemic. Despite being in a pandemic and being badly hit from March 2020 - June 2020 before a second wave in October 2020, we still managed to perform 11 surgeries even though elective hernia repairs did not fall in the priority list. All our patients had mesh applied (mostly measuring 15x10cm), except for those who

operated under the emergency setting. They were all seen back in clinic at 6/52 and 3/12 post-op.

We had a total of 4 recurrences (9.1%) over 2 years. 3 of them in 2019 (10.7%) and 1 in 2020 (6.3%). As of post-operative collection, we had a total of 5 cases (11.4%). 3 of them in 2019 (10.7%) and 2 in 2020 (12.5%).

There was only 1 recorded case with chronic pain >6/12 post-op (2.3%). Rate of conversion to open was zero in our centre and the mean average length of stay (LOS) was 2.76 days.

Most of our complications were of Calvien Dindo class I which required analgesics post-operatively. The 4 cases of recurrence were classified as class III and they are still under our follow-up. We are currently managing the risk factor that led to the recurrence and will thereafter be scheduled for an elective repair of the recurrence via anterior approach once the Covid-19 pandemic settles or as an emergency if they become symptomatic.

4. DISCUSSION

It is important to note that in our 2 years journey of laparoscopic inguinal hernia repair, we have only adopted the Transabdominal pre-peritoneal (TAPP) approach and not the Totally extra-peritoneal (TEP) approach. This is due to surgeon preference and it is believed that TAPP is an easier technique based on literature review comparing TAPP to TEP [2,3,4].

Only 2 surgeons at our center embarked on these surgeries and they were junior surgeons with 2 and 3 years of experience, respectively. The continuous practice allowed them to gain familiarity with the anatomy and surgical

techniques which was reflected in the reduction of rate of recurrence in 2020 when compared to 2019. Based on the study by Umbreto et al., 2019 [5], a minimum of 65 TAPP procedures need to be done to acquire this surgical skill and hence we are half way there in our journey.

With further analysis of the data, obesity (2), constipation (1), and chronic cough (1) comprised of the factors affecting recurrence. This highlights the need for proper pre-operative assessment of risk factors and adequate management prior to surgery in an elective setting.

There have been reports and publications from our peers embarking on a similar surgical approach world wide. These studies have been summarized below [6,7,8,9,10,11].

The table comprises well diversified data covering both developing nations as well as 1st world countries. Comparing the outcomes at HKL with the summarized studies, the rate of recurrence (9.1%) and incidence of post operative collections (11.4%) were higher in HKL. This may have been contributed by the small number of patients due to Covid-19 and the shorter study span of only 2 years. Meta-analysis by Gopal et al., [12] showed the recurrence with TAPP, 1.0% – 4.3% and TEP, 0%–0.4%. This indicates that further training and larger number of patients are needed to improve the outcome.

Table 1. Data comparing TAPP outcomes at other centers

Study	Study span (years)	Country	% of recurrence (cases/sample)	% of post-operative collection (cases/sample)	% of conversion (cases/sample)
Francesco et al., 2009	3.0	Italy	2.4% (2/85)	2.4% (2/85)	0%
Héctor RH et al., 2016	7.5	Colombia	2.9% (3/103)	5.8% (6/103)	2.9% (3/103)
Srijan et al., 2018	1.0	Nepal	2.3% (1/44)	9.1% (4/44)	2.3% (1/44)
Cawich et al., 2013	7.0	Carribbean Island	1.0% (1/103)	2.9% (3/103)	1.9% (2/103)
Zacharoulis et al., 2009	1.0	Greece	0%	0%	4% (2/50)
Vivek et al., 2014	2.5	India	0%	3.3% (1/30)	0%

However, our rate of conversion being 0% was superior in comparison to most of the studies. This validates that the procedure is safe even for new surgeons.

5. CONCLUSION

In a nutshell, based on our center (which is not specialized in hernia care), laparoscopic hernia repair has a good outcome and is rather a safe procedure to embark in as a junior surgeon. TAPP can serve as the steppingstone and be mastered before performing TEP approach. Studies comparing TAPP to open hernioplasty have shown a better outcome in the former arm further advocating TAPP among surgeons [13,14].

The volume of cases performed increases familiarity to the procedure as well as the anatomy. This would ensure a good clinical outcome.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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