National Outcomes of Open Inguinal Hernia Repairs Before and After 2020. Do we Need to Go Back to the Basics?

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Background

During the COVID-19 pandemic, operative volumes dropped significantly in the United States. Some have suggested this could impact patient outcomes, especially when pertaining to open procedures, which are now less frequently performed. Here, we explored temporal trends in outcomes of open inguinal hernia repairs in the United States before and after 2020 using the Abdominal Core Health Quality Collaborative (ACHQC) database. We hypothesized outcomes have remained unchanged.

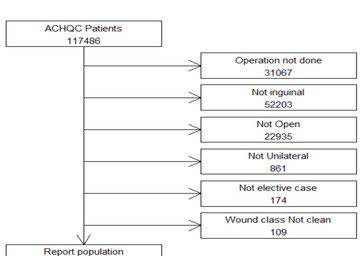
Methods

All patients who underwent elective open unilateral inguinal hernia repairs from January 2016 to August 2023 within ACHQC, were included. After stratifying the cohort by year of surgery (2016-2019 vs. 2020-2023) we compared 30-day and 1-year outcomes [surgical site infection (SSI), surgical site occurrence (SSO), surgical site occurrence requiring intervention (SSOPI), reoperation, recurrence, and quality of life] using univariable analysis and multivariable logistic and linear regression models.

Additionally, we evaluated the occurrence of a composite outcome (SSI, SSO, reoperation, SSOPI or recurrence) among patients who underwent surgery in the two time periods using a time-to-event analysis (Kaplan-Meier).

Results

A total of 10,137 patients were included. The median age in the cohort was 64 years (IQR 53-73), 91% (N=9,242) were male, and 86% (N=8,707) were White. Among them, 4,400 (43%) underwent surgery between 2016-2019 and 5,737 (57%) between 2020-2023. The operative time was <60 minutes in 66% (N=3,785) of the (2020-2023), and in 56% (N=2,457) of the (2016-2019) group (p<0.001).



In terms of outcomes, those operated after 2020 had higher proportion of 30-day SSO (4.3% vs. 3.1%, p=0.024), but better quality of life, as suggested by lower Eura-HS quality of life scores at 30-day (median score 12 vs. 14, p <0.001) and 1-year (median score 1 vs. 5, p=0.017) postoperatively.

Table 1. Logistic/linear regression models

	Odds Ratio/Coefficient	95%CI	
	SSO at 30-days		
Surgery 2020-2023 Compared to 2016-2019	1.55	1.16	2.10
	Recurrence at 1-year		
Surgery 2020-2023 Compared to 2016-2019	0.61	0.25	1.46
	Quality-life at 30-days (Eura-HS Score) (Linear model)		
Surgery 2020-2023 Compared to 2016-2019	-0.46	-1.98	1.06
	Quality-life at 1-year (Eura-HS Score) (Linear model)		
Surgery 2020-2023 Compared to 2016-2019	-3.78	-42.94	35.38

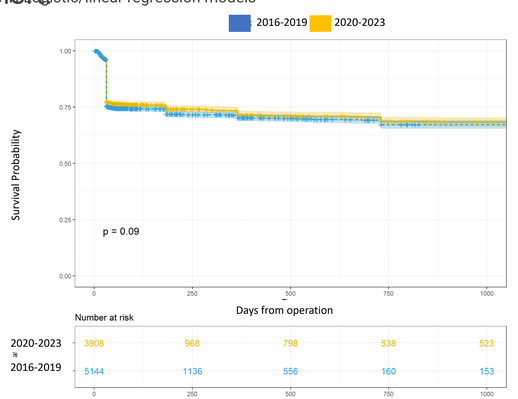
*Adjusted by age, sex, BMI, operative time.

After adjusting for age, sex, BMI, and operative time, those operated after 2020 were more likely to develop SSO at 30 days than those operated before 2020 (adjusted OR 1.55, 95%CI: 1.16 to 2.10). The rest of the measured outcomes were comparable among groups.

In the survival analysis, 9,502 patients with available time-to-event data were included. More patients in the 2020-2023 cohort had the composite event (22% vs. 19%, p=0.003).

In survival analysis, there was a trend to experience the composite event more often in the 2020-2023 cohort.

Table 1. Logistic/linear regression models



Conclusions

This study suggests that the outcomes of open inguinal hernia repair in the United States after 2020 worsened in terms of surgical site occurrences at 30-days. Although this finding merit further investigation, other postoperative outcomes did not seem to be similarly affected.