Analysis of the NSQIP Database in 34541 Patients Undergoing Incisonal/Ventral Hernia Repair: The Association between the Component Separation and Venous Thromboembolism.

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Abstract

Background: Patients undergoing incisonal/ventral hernia repair are at risk of developing several postoperative complications particularly venous thromboembolism (VTE) which is a major cause of morbidity and mortality. (1-5) The aim of this study was to assess 30-day postoperative morbidity and mortality of patients undergoing incisional/ventral hernia repair and to determine the association between component separation and VTE.

Methods: We reviewed the 2005-2011 ACS-NSQIP databases to identify patients undergoing incisional/ventral hernia repair. Preoperative variables and postoperative outcomes were compared between a component separation group and a non-component separation group. Chi-square tests and Fisher's exact test were used for categorical variables and t-tests for continuous variables. Logistic regression analysis was performed to determine preoperative predictors for complications in both groups.

Results: 34,541 patients were included in our study; 501 patients underwent a component separation procedure. A higher rate of wound complications, minor/major morbidity, mortality and return to the operating room (OR) occurred in the component separation group (Table 1).

Table 1. Postoperative Complication

Preoperative Complication	Total	Without Component Separation	With Component Separation	P-value
DVT/Thrombophlebitis	91(0.3)	90(0.3)	1(0.2)	0.998
Pulmonary embolism	58(0.2)	56(0.2)	2(0.4)	<0.001
Wound complication				
Superficial SSI	703(2.0)	671(2.0)	32(6.4)	<0.001
Incisional SSI	287(0.8)	273(0.8)	14(2.8)	<0.001
Organ/space SSI	116(0.3)	110(0.3)	6(1.2)	<0.001
Wound disruption	126(0.4)	121(0.4)	5(1.0)	<0.001
Minor morbidity	240(0.7)	232(0.7)	8(1.6)	<0.001
Major morbidity	574(1.7)	542(1.6)	32(6.4)	<0.001
Mortality	85(0.2)	80(0.2)	5(1.0)	0.020
Return to OR	610(1.8)	587(1.7)	23(4.6)	<0.001
Operation time	78.66±57.815	77.05±55.807	165.02±89.390	<0.001

However, there was no statistically significant difference in deep vein thrombosis/thrombophlebitis and pulmonary embolism rates between the two groups (p=0.780 and p=0.903, respectively) (Table 2).

Table2. Odds ratio for outcomes of component separation procedure.

Postoperative Complication	OR	95% Confidential Interval	P-Value
DVT	0.754	0.105-5.425	0.780
Pulmonary embolism	1.131	0.156-8.189	0.903
Wound complication			
Superficial SSI	2.663	1.847-3.841	0.001
Incisional SSI	2.800	1.624-4.827	0.001
Organ/space SSI	2.948	1.290-6.737	0.010
Wound disruption	2.228	0.907-5.473	0.081
Minor morbidity	1.058	1.029-1.117	0.001
Major morbidity	4.217	2.919-6.093	0.001
Mortality	3.375	1.361-8.366	0.009
Return to OR	2.154	1.406-3.299	0.001

Several risk factors were significantly associated with postoperative complications in both groups.

Conclusions: Component separation is used for large and complex incisional/ventral hernia repairs

to achieve tension-free midline closure. Although it is associated with higher incidence of wound complication, morbidity and mortality, perhaps due to the complexity of the defects, it does not contribute to increased VTE rates. This may suggest it improves abdominal wall physiology thereby preventing VTE in these patients.

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