

Title:

Epidemiology of Shoulder Instability Procedures: A Comprehensive Analysis of Complications and Costs

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Background

- Recurrent shoulder instability is a debilitating condition that can lead to chronic pain, decreased function, and inability to return to activities or sport.
- This retrospective epidemiology study was performed to report 90-day postoperative complications and costs of Latarjet, anterior bone block reconstruction, arthroscopic and open Bankart repair for shoulder instability.





Methods

• Patients 18 years and older who underwent four primary shoulder surgeries from 2010-2019 were identified using national claims data.

- Patient demographics, comorbidities, and 90-day postoperative complications were analyzed using univariate analysis and multivariable logistic regression.
- Total and itemized 90-day reimbursements were determined for each procedure.





- The 90-day medical and surgery-specific complication rates were highest for anterior bone block reconstruction, followed by Latarjet.
- Arthroscopic Bankart repair had the highest 90-day costs and primary procedure costs compared to other procedures.





Table 1. Bivariate Analysis of 90-Day Postoperative Medical Complications

	Arthroscopic Bankart		Open Bankart			Latarjet			Anterior Bone Block		
	N	%	Ν	%	P-Value*	N	%	P-Value*	N	%	P-Value*
Total Medical											
Complications	36	0.05%	59	2.62%	<0.001	30	2.29%	<0.001	11	4.25%	<0.001
Anemia	0	0.00%	3	0.13%	<0.001	3	0.23%	<0.001	3	1.16%	<0.001
Arrhythmia	16	0.02%	24	1.07%	<0.001	14	1.07%	<0.001	5	1.93%	<0.001
Deep Venous Thrombosis	1	0.00%	4	0.18%	<0.001	4	0.31%	<0.001	2	0.77%	<0.001
Pulmonary Embolism	1	0.00%	1	0.04%	0.073	2	0.15%	<0.001	1	0.39%	<0.001
Pneumonia	1	0.00%	9	0.40%	<0.001	8	0.61%	<0.001	2	0.77%	<0.001
Respiratory Complication	1	0.00%	3	0.13%	<0.001	5	0.38%	<0.001	1	0.39%	<0.001
Urinary Tract Infection	20	0.03%	46	2.04%	<0.001	21	1.61%	<0.001	5	1.93%	<0.001

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Table 2: Bivariate Analysis of 90-Day Postoperative Surgery-Related Complications

	Arthroscopic Bankart		Open Bankart			Latarjet			Anterior Bone Block		
	N	%	Ν	%	P-Value*	N	%	P-Value*	N	%	P-Value*
Total Surgical Complications	361	0.50%	25	1.11%	<0.001	32	2.46%	<0.001	10	3.86%	<0.001
Mononeuropathy	261	0.37%	12	0.53%	<0.001	14	1.07%	<0.001	0	0.00%	0.913
Surgical Site Infection	126	0.18%	18	0.80%	<0.001	18	1.38%	<0.001	7	2.70%	<0.001
Bleeding Complication	41	0.06%	8	0.36%	<0.001	15	1.15%	<0.001	5	1.93%	<0.001
Transfusion	2	0.00%	2	0.09%	<0.001	2	0.15%	<0.001	1	0.39%	<0.001



Table 3. Multivariable Logistic Regression Analysis of 90-Day Surgery-Specific **Postoperative Complications**

	Procedure*	Odds Ratio	95% CI	P-Value
Total Surgery-Specific	Open Bankart	4.78	3.11-6.32	<0.001
Complications	Latarjet	9.21	3.90-12.23	<0.001
	Anterior Bone Block	11.11	4.11-31.47	<0.001
Surgical Site Infection	Open Bankart	4.17	2.61-6.67	<0.001
	Latarjet	8.99	5.69-14.19	<0.001
	Anterior Bone Block	13.06	6.19-27.52	<0.001
Mononeuropathy	Open Bankart	1.48	0.90-2.43	0.118
	Latarjet	2.85	1.76-4.61	<0.001
	Anterior Bone Block	0.00	0.00-891.00	0.952
	Open Bankart	5.59	2.65-11.78	<0.001
Bleeding Complication	Latarjet	20.61	11.32-37.53	<0.001
	Anterior Bone Block	19.87	6.73-58.64	<0.001
	Open Bankart	1.92	0.45-5.49	0.290
Transfusion	Latarjet	3.90	1.13-13.42	0.031
	Anterior Bone Block	3.49	0.45-27.17	0.232







Table 4. Rei	mbursements by Ser	vice Type					
	Arthroscopic Bankart	Open Bankart	P-Value	Latarjet	P-Value	Anterior Bone Block	P-Value
	\$					\$	
Total 90-Day Costs	5,413.01	\$ 5,036.80	0.234	\$ 4,815.12	0.015	4,404.95	0.004
	\$					\$	
Primary Procedure	2,760.20	\$ 1,255.45	<0.001	\$ 1,689.24	<0.001	1,018.46	<0.001
	\$	\$				\$	
Anesthesia	830.07	777.85	0.431	\$ 848.17	0.662	971.34	0.648
	\$	\$				\$	
Imaging	394.81	683.56	0.013	\$ 533.13	0.034	451.77	0.437
	\$	\$				\$	
Diagnostic Laboratory Work	859.23	791.92	0.601	\$ 920.97	0.736	1,204.25	0.409
	\$	\$				\$	
Office Visit	281.08	291.34	0.663	\$ 268.13	0.647	224.02	0.062
Physical/Occupational	\$	\$				\$	
Therapy	249.73	268.50	0.645	\$ 204.44	0.074	389.70	0.164





Conclusion

 Anterior bone block reconstruction and Latarjet procedures were associated with the highest rates of 90-day medical and surgery-specific complications, while arthroscopic Bankart repair was associated with the highest costs.





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