

**Appendix 1 Search strategy****PubMed:**

("Thoracic Wall") AND "Titanium" ;  
 ("Thoracic Wall surgery") AND "Titanium devices"  
 ("Titanium [Mesh]" AND "Chest Wal [Mesh]");  
 ("Titanium/therapeutic use"[Mesh]) AND "Thoracic Wall/surgery"[Mesh] ;  
 ("Thoracic Wall/surgery" AND "Titanium/therapeutic use");  
 ("Titanium/therapeutic use"[Mesh]) AND "Thoracic Wall"[Majr]  
 ("Titanium"[Mesh] OR "Titanium/therapeutic use"[Mesh]) AND ("Chest Wall"[Mesh] OR "Thoracic Wall/surgery"[Mesh])  
 (("Thoracic Wall/surgery"[Mesh]) AND "Thoracic Wall"[Majr]) AND "Titanium/therapeutic use"[Mesh]

**MeSH terms:**

Plastic Surgery Procedures\*  
 Thoracic Surgical Procedures\*  
 Thoracic Wall\* / pathology  
 Thoracic Wall\* / surgery  
 Thoracic Wall / injuries\*  
 Bone Plates / adverse effects  
 Retrospective Studies  
 Thoracoplasty\*  
 Titanium  
 Titanium / adverse effects  
 Titanium / therapeutic use  
 Biomedical Engineering / methods\*  
 Humans  
 Surgery, Computer-Assisted / instrumentation\*  
 MeSH terms  
 Bone Neoplasms\* / surgery  
 Female  
 Humans  
 Male  
 Female  
 Neoplasm Recurrence, Local / surgery  
 Surgical Mesh

**Web of science**

TS=("Chest wall reconstruction" AND Titanium);  
 ("thoracic wall surgery" AND "titanium");  
 ("Chest wall reconstruction" AND "titanium devices");  
 ("thoracic surgery" AND "Titanium devices");  
 ("thoracic wall surgery" AND "titanium" and "therapeutic use").

**EMBASE**

('thoracic wall surgery' OR 'chest wall surgery');  
 ('titanium devices' OR 'titanium implants') AND ('thoracic surgery' OR 'chest surgery');  
 ('Chest wall reconstruction' AND 'titanium devices');  
 ('titanium devices') AND ('thoracic wall surgery' OR 'chest wall surgery') AND ('therapeutic use')  
 ("Chest wall surgery" AND "titanium devices")

**SCOPUS**

("titanium devices" OR "titanium implants") AND ("thoracic wall surgery" OR "chest wall surgery") AND ("therapeutic use");  
 ("Chest wall reconstruction" AND Titanium);  
 ("Chest wall reconstruction" AND "titanium devices");  
 ("thoracic surgery" OR "chest wall surgery") AND ("titanium bars" OR "titanium implants" OR "titanium devices");  
 ("Chest wall reconstruction" OR "thoracic wall reconstruction") AND ("titanium bars" OR "titanium implants");

Appendix 2 Articles evaluated following the quality standards issued by Meta-analysis Of Observational Studies in Epidemiology (MOOSE) group

Authors	Year of publication	Title and Abstract	Introduction: Definition and Objectives	Methods: Definition and Objectives	Participants: Inclusion/ Exclusion Criteria Representativeness	Results: Data Analysis, Statistical Description; Interpretation of results	Discussion: Comparison with Existing Literature; Limitations	Conclusions: Appropriateness; Clinical Implications	Other Aspects: Consistency; Bias and Confounding Factors	Funding Sources and Conflicts of Interest: Transparency	Authors' Reputation and Credibility: Experience
Briccoli (17)	2002	1	1	1	1	No statistical analysis	Limitations NA	NA	NA	NA	First experience
Voss (21)	2008	1	1	1	1	1	Limitations NA	1	NA	NA	First experience
Iarussi (20)	2010	No abstract	1	1	1	No statistical analysis	NA	NA	NA	NA	First experience
Althausen (27)	2011	1	1	1	1	No statistical analysis	NA	NA	NA	NA	First experience
Berthet (28)	2012	1	1	1	1	No statistical analysis	1	1	1	1	Second report
Billè (29)	2012	1	1	1	1	No statistical analysis	1	1	NA	1	First experience
Fabre (6)	2012	1	1	1	1	1	1	1	1	1	First experience
Bottlang (30)	2013	1	1	1	1	No statistical analysis	1	1	1	1	Prospective series
Levy Faber (23)	2013	1	1	1	1	1	1	1	1	1	Second report
Schulz-Drost (31)	2014	1	1	1	1	No statistical analysis	Limitations NA	1	NA	1	First experience
Yang (32)	2015	1	1	1	1	1	1	1	1	1	First experience
Berthet (16)	2015	1	1	1	1	1	1	1	1	1	Third report
De Palma (33)	2016	1	1	1	1	No statistical analysis	Limitations NA	1	NA	1	First experience
Bongiolatti (22)	2017	1	1	1	1	1	1	1	1	1	Second report
Maniscalco (34)	2020	1	1	1	1	No statistical analysis	Limitations NA	1	1	NA	First experience
Bergovec (35)	2022	1	1	1	1	1	1	1	NA	1	First experience
Clermidy (36)	2022	1	1	1	1	1	1	1	1	1	Third report
Sollie (37)	2022	1	1	1	1	1	1	1	1	1	First experience

1= yes. NA, not available.