

Synchronous Tracheostomy and Pulmonary Surgery; A Case-Series

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Background

- Patients presenting for pulmonary surgery are an increasingly higher-risk cohort than historically was the case.
- Many will have a background of chronic suppurative disease.
- A minority of patients will require a tracheostomy to aid weaning from mechanical ventilation post-operatively.
- Optimal timing for tracheostomy is unclear; early placement allows effective bronchial toilet and respiratory support in the absence of sedation.
- In selected, high-risk patients with excessive suppuration at bronchoscopy synchronous pulmonary surgery and percutaneous tracheostomy (SPSPT) may offer a recovery benefit.
- This retrospective case-series reports our experience of SPSPT.

Results

- We identified 14 SPSPT patients and were able to review all notes; 62% were female, average age was 68.4 years.
- All patients had oncological pathologies; the majority (11) underwent lobectomies; other procedures were sub-lobar wedge resections (2) and pneumonectomy(1).
- Pre-operative pulmonary function test results reported an average FEV1 of 72% and an average DLCO of 61% (%pre-operative predicted value).
- Ten patients recovered uneventfully from surgery with no immediate post-operative complications. Two patients experienced tracheostomy associated complications (painful tracheostomy and partial tracheostomy occlusion). Two patients developed pneumonia in the post-operative period with one requiring readmission to ICU.
- The total length of stay averaged at 13.4 days with a range from 6 days to 43 days. This comprised an average time with tracheostomy (5.5 days), average time in ICU (6.7 days) and average time on the ward (6.7 days).

Table 1. Summary of Patients who underwent synchronous pulmonary surgery and percutaneous tracheostomy at University Hospital of South Manchester between 01/01/2010 and 31/12/2011

Sex	Age	Operation	Pre-Operative TNM Staging			ECOG Performance Score	ASA Grade	Pulmonary Function Tests (as % of pre-operative predicted value)				Total length of stay (days)	Time with Tracheostomy (days)	Time on ICU (days)	Time on Ward (days)
			T	N	M			FEV1	FVC	FEV1/FVC	DLCO				
M	79	Lobectomy	T3	N1	M0	1	2	100	100	72	102	6	2	4	2
F	69	Pneumonectomy	T2b	N2	M0	2	3	72	100	48	47	16	3	5	11
F	62	Lobectomy	T3	N0	M0	1	3	72	83	72	73	11	7	8	3
M	75	Lobectomy	T2	N0	M0	2	3	45	94	40	59	10	7	8	2
M	71	Sublobar Wedge Resection	T2	N0	M0	1	2	84	82	77	64	13	3	4	9
F	67	Lobectomy	T2	N0	M0	1	3	100	95	88	49	12	9	10	2
F	80	Lobectomy	T2	N0	M0	1	2	61	98	51	55	22	5	6	16
F	50	Lobectomy	T1	N0	M0	1	3	92	100	71	58	7	2	3	4
F	68	Lobectomy	T2b	N1	M0	1	3	58	82	82	69	9	2	4	5
F	77	Lobectomy	T2	N0	M0	1	3	56	88	51	61	14	3	5	9
M	62	Lobectomy	T2	N1	M0	/	3	72	100	57	51	8	5	5	3
F	59	Lobectomy	T2a	N0	M0	1	3	82	100	53	83	9	5	6	3
F	64	Sublobar Wedge Resection	T2a	N0	M0	1	2	41	72	45	30	8	4	5	3
M	74	Lobectomy	T2b	N0	M0	1	2	74	100	56	48	43	20	21	22
Mean Average	68.4						2.6	72.1	92.4	61.6	60.6	13.4	5.5	6.7	6.7
Standard Deviation	8.2						0.5	17.9	9.0	14.5	16.9	9.1	4.5	4.4	5.9

Method

- Patients were selected for SPSPT by the surgeon and anaesthetist, based on a raised clinical suspicion of post-operative complications. This was guided by pre-operative assessment and bronchoscopy findings.
- The local surgical database (DATACAM) was used to identify patients who underwent SPSPT during the period 01/01/2010 to 31/12/2011.
- Notes were retrieved and reviewed.
- Sex, age, procedure, pre-operative staging, ECOG performance score, ASA grade and pulmonary function were imported from DATACAM and cross-checked with patient records.
- Total length of stay was calculated and divided into: time with tracheostomy, time on ICU, and time on ward (days)

Conclusions

- Patients selected for SPSPT were high-risk patients with multiple comorbidities and excessive pulmonary secretions at bronchoscopy.
- In our series, no patient came to direct immediate or medium-term harm as a result of a tracheostomy.
- Length of stay for SPSPT patients was comparable with other reported high-risk cohorts [1].
- We are unable to compare the benefits of synchronous tracheostomy with standard care due to the lack of a control arm and cohort size.
- At our institution, we no longer undertake this procedure, due to the lack of perceived benefit of SPSPT.

References

1. Wright CD, Gaisert HA, Grab JD, O'Brien DM, Peterson ED, Allen MS: Predictors of prolonged length of stay after lobectomy for lung cancer: A Society of Thoracic Surgeons General Thoracic Surgery Database Risk-Adjustment Model. *Ann Thorac Surg* 2008;85:1857-1865

