

CASE CONFERENCE

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104-7-5

PATIENT PROFILE

- Chart No. 00000000
- Name: 000
- Gender: Female
- Age: 84 y/o
- Admission date: 2015/10/7 ~ 2015/10/14

- XXXX/XX
 - GIST, midbody, lesser curvature site, 8*4*4mm, 6*4*4mm, pT1N0M0, lower grade, (<5/50 HPF), actin (+), CD 34 (+), CD 117 (+), DOG-1 (+), S-100 (-)
 - F/U at our OPD after surgery
- XXXX
 - FNA of thyroid:
 - 04/12 Right: 1.14x0.97x0.865cm
 - 05/07 Left: 1.22x0.69 cm
 - Negative for malignant cells

- xxxx/xx
 - Right thyroid cyst aspiration
 - Unsatisfactory cyst fluid only
- xxxx/xx/xx
 - Right thyroid cyst aspiration (1.4x0.8 mm)
 - Malignant (+), papillary thyroid carcinoma
cT1N0M0, pT1N1N0m stage 3
- xxxx/xx/xx
 - Total thyroidectomy

POST-OP DIAGNOSIS

- **Right thyroid papillary carcinoma**, stage 3 post FNA on 2015/08/20.
Post total thyroidectomy 2015/10/08
- **Gastric malignant gastrointestinal stromal tumor (GIST)**, midbody, lesser curvature site, 8*4*4mm, 6*4*4mm pT1N0M0, lower grade, (<5/50 HPF), actin (+), CD 34 (+), CD 117 (+), DOG-1 (+), S-100 (-)
- Slow Fast AVNRT s/p successful ablation.
- Mitral valve prolapse (AML) with mild MR & TR.
- Mild erosive esophagitis, EG junction
- Chronic liver disease
- Vertebral basilar insufficiency
- Degenerative joint disease of cervical spine

Total Thyroidectomy is Associated with Increased Risk of Complications for Low- and High-Volume Surgeons

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INTRODUCTION

- Prevalence rates of Thyroid disorders: 5–20%
 - Management of benign thyroid disease:
 - Total thyroidectomy (TT)
 - Unilateral thyroidectomy (UT)
 - Outcome of thyroidectomy → **Volume of surgeon**
 - Low volume (<10 thyroidectomy/year)
 - Intermediate volume (10-99 thyroidectomy/year)
 - High volume (>99 thyroidectomy/year)
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- There's **no significant difference** between the risks of complication after UT compare to TT for benign disease.
 - Choose of thyroid lobectomy or TT for management of benign thyroid condition
 - Small (<1 cm)
 - Low-risk
 - Unifocal
 - Intrathyroidal papillary carcinomas without prior head and neck irradiation or radiologically or clinically involved cervical nodal metastasis
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MATERIALS AND METHODS

- Cross-sectional analysis with Nationwide Inpatient Sample (NIS) database for the years 2003-2009.
 - Adult inpatients who underwent TT or UT as the primary procedure.
 - Primary diagnosis was classified into (1) **malignant** or uncertain behavior neoplasms of the thyroid, (2) **benign** thyroid disease, or (3) **Grave's disease**.
 - Main study outcome:
 - Postoperative complication
 - Hospital charges
 - Hospital length of stay (LOS)

- Independent variables considered were **surgeon volume** and **type of thyroidectomy**
 - Secondary independent factors
 - Patient demographics
 - Socioeconomic factors
 - Clinical factors
 - Hospital characteristics
 - **Cross-tabulation** and **χ^2 test**
→ each of the independent factors and postoperative complications.
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- Odds ratio (OR) and 95% confidence interval (CI)
→ Postoperative complication vs surgeon volume and type of thyroidectomy.
- Significance level was set as $\alpha = 0.05$

RESULT

TABLE 1 Descriptive statistics of study population in relation to presence of postoperative complications

Characteristic	Weighted % for			<i>p</i> ^a
	All cases (<i>n</i> = 62,722)	Postoperative complications present (<i>n</i> = 10,257)	Postoperative complications absent (<i>n</i> = 52,465)	
Age (year)				
<65	76.1	72.1	76.9	
65–79	20.7	23.3	20.2	
≥80	3.1	4.6	2.9	<0.0001
Gender				
Male	19.4	18.1	19.7	
Female	80.6	81.9	80.3	0.0009
Race				
White	71.7	71.4	71.7	
Black	11.5	12.0	11.3	
Hispanic	8.5	9.2	8.4	
Other	8.4	7.4	8.6	0.0258
Household income quartile				
<\$39,000	20.0	22.0	19.6	
\$39,000–\$47,999	23.2	23.5	23.1	
\$48,000–\$62,999	25.1	25.4	25.0	
>\$62,999	31.8	29.1	32.3	<0.0001
Service payer				
Medicare	23.7	28.2	22.8	
Medicaid	7.7	7.5	7.7	
Private/HMO	66.4	61.9	67.2	
Self-pay	2.3	2.4	2.3	<0.0001

Surgeon volume				
Low	50.2	55.4	49.2	
Intermediate	44.8	41.1	45.5	
High	5.0	3.5	5.2	0.0001
Thyroidectomy				
Unilateral	42.1	27.7	44.9	
Total/complete	57.9	72.3	55.1	<0.0001
Thyroid diagnosis				
Graves disease	3.3	3.6	3.2	
Benign	60.8	56.4	61.7	
Malignant	35.9	39.9	35.1	<0.0001
Neck dissection				
Yes	0.4	0.7	0.4	
No	99.6	99.3	99.6	0.0007
In-hospital mortality				
Yes	0.0	0.2	0.0	
No	100.0	99.8	100.0	<0.0001
Hospital region				
Northeast	28.6	22.8	29.7	
Midwest	19.1	21.4	18.7	
South	28.1	34.2	26.9	
West	24.2	21.7	24.7	<0.0001
Hospital volume ^b				
Low	74.7	77.4	74.1	

TABLE 1 Continued

Characteristic	Weighted % for			<i>p</i> ^a
	All cases (<i>n</i> = 62,722)	Postoperative complications present (<i>n</i> = 10,257)	Postoperative complications absent (<i>n</i> = 52,465)	
High	25.3	22.6	25.9	0.0046
Hospital bed size				
Small	10.8	9.1	11.1	0.0083
Medium	21.5	20.9	21.7	
Large	67.7	70.0	67.2	
Hospital location				0.4117
Rural	6.7	7.0	6.6	
Urban	93.3	93.0	93.4	
Hospital teaching status				0.3721
Nonteaching	42.2	43.1	42.1	
Teaching	57.8	56.9	57.9	
Charlson index				<0.0001
None	69.2	61.6	70.7	
Mild	25.0	29.4	24.1	
Moderate	4.9	7.5	4.4	
Severe	0.9	1.5	0.7	
Obesity (BMI \geq 30 kg/m ²)				<0.0001
Yes	7.3	10.1	6.7	
No	92.7	89.9	93.3	

- Postoperative complications were reported in 16.4% of total cases
 - TT= 20.4%, UT= 10.8%, $p < 0.0001$
- Complications:
 - Hypocalcemia
 - Respiratory complication
 - Bleeding
 - Hematoma
 - Tracheostomy
 - Vocal cord paralysis

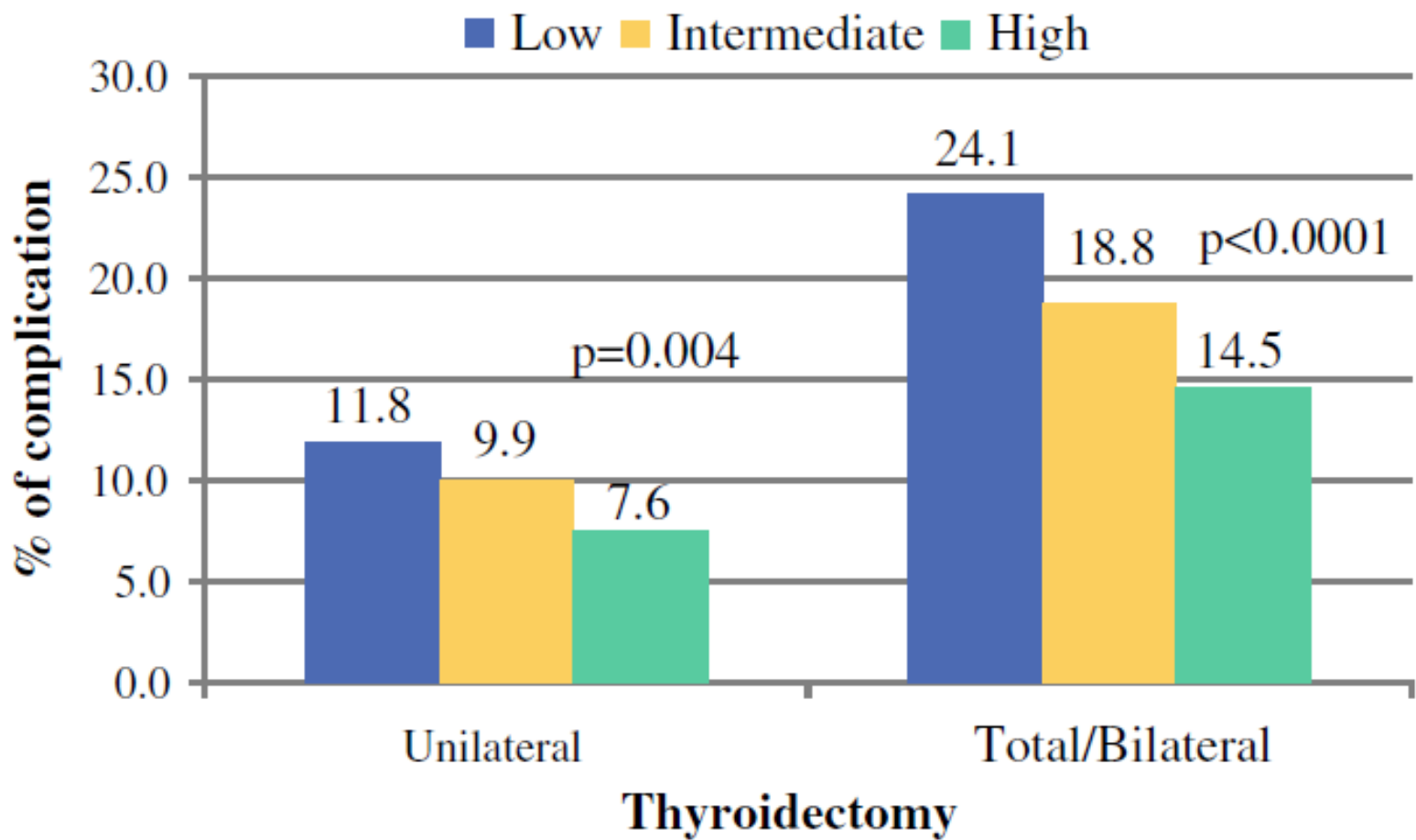


TABLE 3 Type of postoperative complication in relation to surgeon volume

Type of complication	Weighted % for ^a				<i>p</i> ^c
	All cases (<i>n</i> = 62,722)	Low surgeon volume ^b (<i>n</i> = 18,954)	Intermediate surgeon volume ^c (<i>n</i> = 16,797)	High surgeon volume ^d (<i>n</i> = 1,799)	
One or more	16.371	18.426	15.332	11.921	<0.0001
Cardiovascular	0.060	0.077	0.042	0.000	NA
Pulmonary	1.135	1.639	0.530	0.287	<0.0001
Renal	0.108	0.164	0.049	0.000	NA
Bleeding	0.198	0.274	0.103	0.000	NA
Infection/sepsis	0.085	0.118	0.061	0.061	0.2136
Wound complication	0.002	0.005	0.000	0.000	NA
Shock	0.006	0.016	0.000	0.000	NA
Neck hematoma	1.411	1.727	1.147	0.549	<0.0001
Neck seroma	0.038	0.046	0.011	0.000	NA
Cystitis	0.017	0.020	0.025	0.000	NA
Hoarseness	0.551	0.586	0.586	0.332	0.4183
Tracheomalacia	1.084	1.219	0.973	0.892	0.2246
Tracheostomy	0.016	0.011	0.005	0.000	NA
Hypocalcaemia	12.333	13.665	12.128	9.300	0.0091
Vocal fold paralysis	1.017	1.035	0.790	1.005	0.5227

DISCUSSION

- Benefit of TT for benign lesion:
 - Adequate removal of disease
 - Prevention of recurrence
 - Avoidance of need for completion surgery when malignancy is diagnosed.
- TT is associated with a **significantly higher risk of complications** compared to UT even among high-volume surgeons.
- Overall, low-volume surgeons were significantly more likely to have complications compared to high-volume surgeons.
- Charges and LOS were both less with UT and high-volume surgeon.

- Limitations and shortcomings of this study:
 - Couldn't fully adjust for the **extent** of thyroid disease or **stage** of thyroid cancer.
 - Underestimates **30-day complication** and **mortality** rates after all procedures.
 - Underestimated the complication rate of UT.
(ex. Unilateral cord or parathyroid injury)
 - Database of inpatients → maybe more sicker and complications than outpatients.
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- Conclusions:
 - Higher risk of complication with TT than UT.
 - Higher surgeon volume is associated with improved patient **outcomes** after TT, **fewer total charges** when complications do occur, and a **decreased LOS**.
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THANK YOU FOR YOUR ATTENTION

