

BACKGROUND

- Pediatric thyroid nodules and pediatric thyroid cancer are uncommon. Despite its relative aggressiveness, the prognosis for pediatric thyroid cancer is favorable if treated appropriately.
- Workup for these lesions include ultrasound (US) and Fine Needle Aspiration (FNA).
- There is debate whether to perform a total thyroidectomy or lobectomy for follicular lesions on FNA.
- Our goal was to characterize the presentation, treatment, and outcomes in all pediatric patients requiring thyroid resections at two hospitals from 2003-2014 and to determine risk of complications and the utility of FNA.

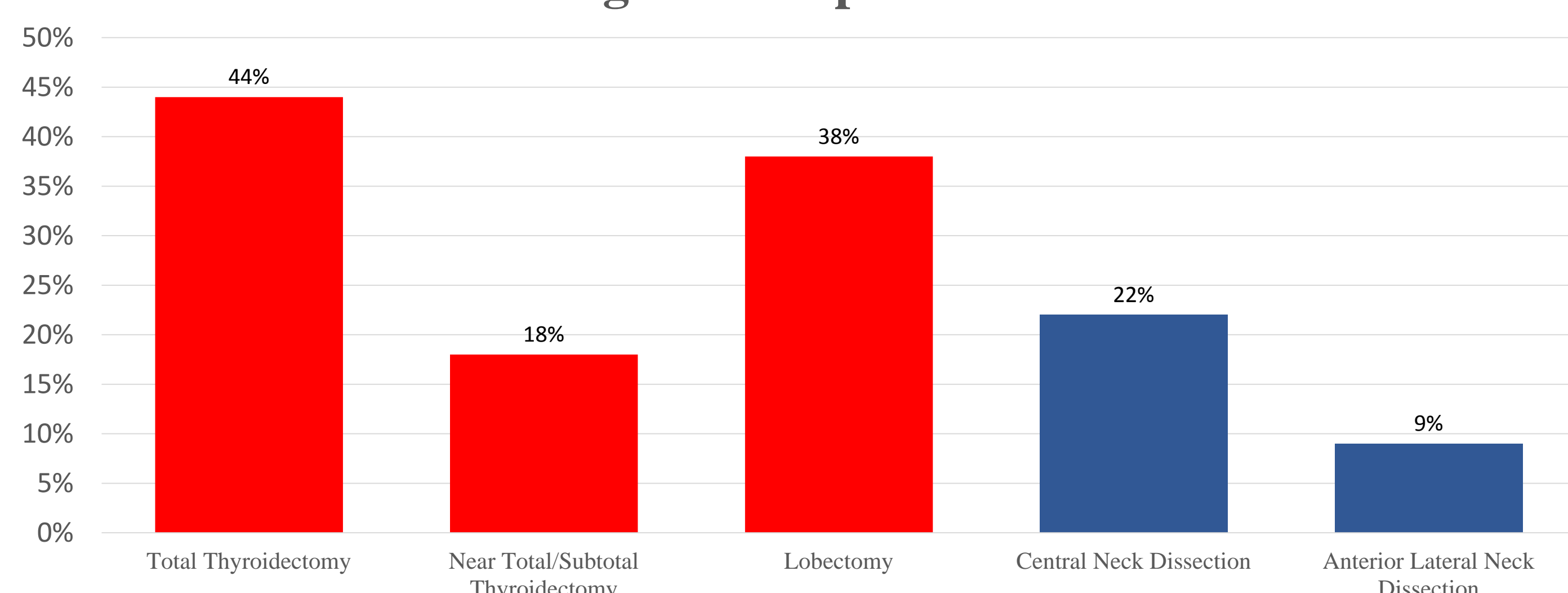
METHODS

- After IRB approval, we conducted a retrospective analysis of 97 pediatric thyroid surgery patients at Children's Health Dallas and Duke Medical Center from 2003-2013.
- We examined demographic factors, history, physical, imaging, operative course, and follow-up to characterize the population and assess risk factors for surgical complications in our population.
- We examined the sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of FNA.

RESULTS

- 86% females; 14% male
- 75% Caucasian, 9% Hispanic, 13% African-American
- 6% history of previous cancer with radiation therapy
- 12% family history of Multiple Endocrine Neoplasia Type 2A
- Mean follow-up - 33 months

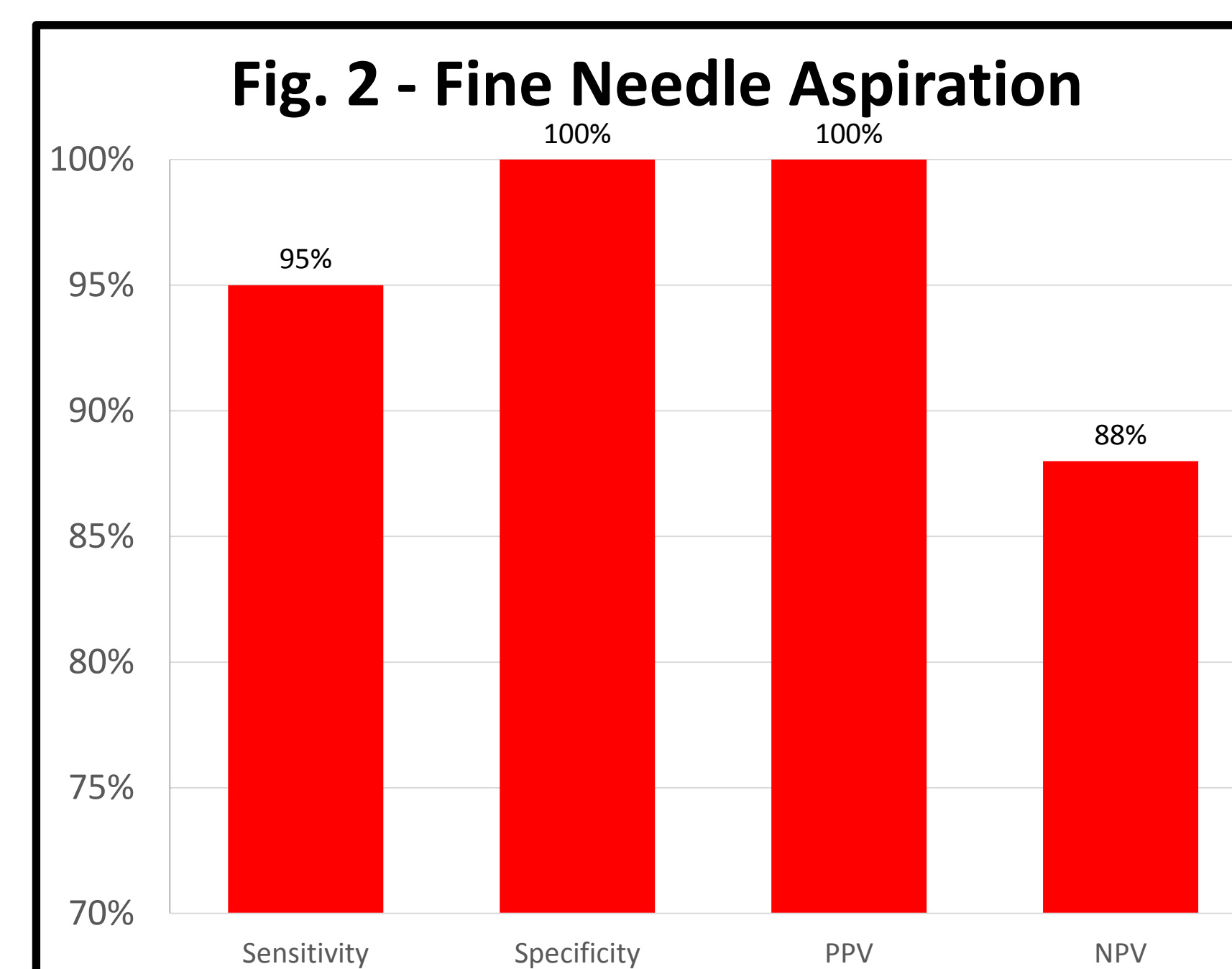
Figure 1 - Operations



FNA Results

FNA performed on 67 (69%) patients

- 20 FNA cancer
 - all cancer on final
- 8 FNA benign
 - 1 cancer on final
- 38 other
 - 32 Follicular
 - 1 FNA non-diagnostic
 - 3 Hurtle cell FNA
 - 3 FNA suspicious for cancer
 - all cancer on final



Follicular Lesions on FNA

- 32 patients had follicular lesions on FNA (% cancer on final)
 - 20 follicular lesion of undetermined significance (30%)
 - 11 follicular neoplasm (36%)
 - 1 follicular lesion suspicious for cancer
- Surgical Procedures
 - 11 patients had total/near total thyroidectomies
 - Goiter, bilateral lesions, history of radiation
 - 21 patients had lobectomy
 - 4 (19%) completion thyroidectomies for cancer
 - 9 (43%) needed Synthroid supplementation

Thyroid Cancer

- 11 (34% had cancer on final pathology)
- 41 patients had cancer on final pathology
 - Histology
 - 29 papillary, 1 papillary and follicular, 7 follicular, 4 medullary (all from prophylactic specimens)
 - 39% lymph node metastases
 - 2% (one patient) distant metastasis
 - 63% postoperative I131 radiation treatment
 - 7% recurrence rate
 - 0% Mortality

MEN-2A

- Twelve patients (ages 3-17 years) had prophylactic thyroidectomies for MEN-2A.
 - 4/12 had MTC on final pathology.

Table 1 - Postoperative Complications

Complications	Total Thyroidectomy (n)	Near Total/Subtotal Thyroidectomy (n)	Lobectomy (n)
Transient Hypocalcemia	6	1	1
Permanent Hypocalcemia	0	0	0
Transient Nerve Injury	2	3	0
Permanent Nerve Injury	0	0	0
Wound Infection	1	0	0
Chyle leak	0	1	0
Pneumonia	1	0	0

- 13% of patients had complication(s)
- Palpable nodes, history of radiation, malignancy, and type of surgery were risk factors for complications (p<0.05)

CONCLUSION

- FNA is a reliable diagnostic tool.
- There are less complications with lobectomy than total or near total thyroidectomy. There is an increased risk of complications with lymph node dissection.
- If FNA detects a follicular lesion, lobectomy may be performed. However, it should be understood that there is a risk of needing a completion thyroidectomy.

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