Gross Pathology of Routine Pediatric Tonsillectomy: Cost Analysis

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ABSTRACT

Objectives:
Over the past twenty years, significant evidence has shown that histologic analysis of routine tonsillectomy specimens is unnecessary from a safety standpoint and significantly costly. Gross pathologic analysis has since become the standard of care. Although more cost effective than histologic analysis, it still has a cost, without evidence that it changes management of these patients. Cost analysis has become essential in light of healthcare reform favoring the model of bundled reimbursement payments over the current paradigm of fee-for-service. This investigation seeks to evaluate the effect of gross pathologic analysis on our management of patients undergoing routine tonsillectomy and to determine its cost.
Study Design:
Retrospective chart review
Methods:
Records of patients who underwent pediatric tonsillectomy with gross pathologic analysis were reviewed for demographics, surgical indications, and pathology. Abnormal reports prompted an in depth review of the chart. Cost analysis entailed tallying charges and reimbursement of hospital and professional fees for gross analysis.
Results:
From 2005 to 2016, 3183 cases were sent for gross analysis revealing no significant pathologic findings. Ten cases underwent microscopy by pathologist order, revealing normal tonsillar tissue. The mean total charge for gross analysis was $60.67 if tonsils were together as one specimen and $77.67 if tonsils were sent as two separate specimens; respective reimbursement amounts were $28.74 and $35.90.
Conclusions:
Gross pathologic analysis did not change our management of routine tonsillectomy patients. Foregoing the practice would save between $23,115.27 and $29,592.27 in charges per year.
Level of Evidence:
2c

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INTRODUCTION

Tonsillectomy for OSA or recurrent tonsillitis is an extremely common procedure.

Many investigations have evaluated effectiveness and necessity of histologic analysis of tonsillectomy specimens in pediatric patients.[3,4,5,6,7,8,9,10,11,12]

The cost of histologic analysis of routine tonsillectomy specimens is significant.

- Netser and colleagues in 1997 reported an average cost of $64,718 per case to detect potentially clinically significant disease.[13]
- Rokkjaer and Klug's systematic review evaluated 21,223 pediatric routine tonsillectomies and found a total of 3 unsuspected malignancies, a rate of 0.01 percent.[14]

Suspicion for malignancy has proven an adequate predictor of pathology in both the adult and pediatric populations. [15,16]

The consensus of the literature settled against sending these specimens for routine histologic analysis and only requesting this analysis when suspicion for abnormality was present.

The literature also recommended that routine tonsillectomy specimens still be sent for gross pathology, at face value it is less costly than microscopic analysis, however there was no data to support this recommendation.

With the coming changes from fee-for-service to an episode-of-care billing model, the subject of cost effective care, not just low cost care, is a salient one.

Our investigation seeks to determine whether routine gross pathological analysis of tonsillectomy specimens changes our management of patients, and what cost the practice is incurring at our institution.

METHODS AND MATERIALS

Chart review was performed for all routine pediatric tonsillectomies, ages 14 and younger, from January 2005 to March 2016.

We searched for cases using CPT codes 42820, 42821, 42825 and 42826.

Demographic data and preoperative indications data were collected.

All operative report and pathology report data were reviewed. Non-routine cases were excluded.

Data on cost were extracted from financial records from 2015 to 2016 for the most current information.

We determined the per case and year charges and reimbursements based on average number of tonsillectomy cases performed per year.

RESULTS

Gross analysis was performed on 3183 cases from 2005-2016. There were 1342 females and 1841 males.

Thirteen non-routine cases were excluded.

Ten cases underwent microscopy. All ten microscopy results were reported as normal tonsillar tissue.

In six cases, the reason was not specified in any record.
In four cases, the pathologist reported a rough or irregular appearing surface of the tonsil.
In one case, sectioning revealed yellow central cores of bilateral tonsils.

Cost results are presented in Table 1.

Table 1. Gross Pathology Cost Analysis.

Hospital Charges	**Per Case**	**Per Year***
Facility	$42.87	$16,333.47
Equipment	$0.80	$304.80
Total hospital charge	$43.67	$16,638.27
Professional Charges	**Per Case**	**Per Year***
Tonsils sent together as one specimen	$17.00	$5,372.00
Tonsils sent as two separate specimens	$34.00	$10,744.00
Total Charges	**Per Case**	**Per Year***
Tonsils sent together as one specimen	$60.67	$19,171.72
Tonsils sent as two separate specimens	$77.67	$24,543.72
Reimbursement of hospital charges	**Per Case**	**Per Year***
Total hospital charge	$23.00	$7,268.00
Reimbursement of professional charges	**Per Case**	**Per Year***
Tonsils sent together as one specimen	$5.74	$2,186.94
Tonsils sent as two separate specimens	$12.90	$4,102.20
Total Reimbursement	**Per Case**	**Per Year***
Tonsils sent together as one specimen	$28.74	$9,081.84
Tonsils sent as two separate specimens	$35.90	$11,344.40

*Based on 316 cases per year on average at our institution

DISCUSSION

Gross pathology of routine pediatric tonsillectomy specimens does not appear to be changing our management of patients and is incurring a significant cost.

There is no standard of care regarding what normal tissue specimens should be sent to pathology, previous studies indicate wide variation among institutions, and there is no published consensus from the American College of Pathologists

Consider the goals of healthcare reform initiatives, such as the Arkansas Payment Improvement Initiative for tonsillectomy, where one sum is given for the period from first preoperative visit to last post operative visit:

- reduce multiple preoperative visits
- reduce inappropriate polysomnograms
- have appropriate post op observation periods
- reduce antibiotics
- reduce pathology usage
- reduce readmissions

Limitations of our study include lack of long term follow up, a single geographical area of study, and retrospective nature of the data.

CONCLUSIONS

Considering our results in the context of the upcoming healthcare payment reforms, the reimbursement values would more accurately reflect how much we stand to save, given that they will be accounted for out of one predetermined payment for all costs incurred during a tonsillectomy episode.

It appears it is a cost effective and safe decision to forego routine gross examination of pediatric tonsillectomy patients at our institution when there is no preoperative or intraoperative concern for abnormality.

This would be a significant change in practice for the majority of otolaryngologists. The development of a formal guideline for such cases should be considered.

Such a committee should be made up of representation by the American College of Pathology and the American Academy of Otolaryngology with consultation from hospital administration leaders and representatives from the Centers for Medicaid and Medicare Services.

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