The Surgeon and the Pathologist – An Innovative Frozen Section Protocol to Improve the Translation from Surgical Specimen to Pathologic Specimen

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INTRODUCTION

Recurrence rates for head and neck carcinomas are currently unacceptably high. The existing frozen section process allows for subjective description of landmarks and tissue specimens. This process is time consuming and can lead to miscommunication. Presently, the process consists of excising the suspicious lesion en bloc. Then, either the margins are taken from the defect perimeter invivo by the surgeon or the pathologist is asked to circumferentially harvest margins from the primary lesion ex vivo. The specimens are then sent off in a small cup with a single tagged suture or some other subjective orientation technique (figures 1 and 2). As the tissue arrives by courier the anatomy and reasoning behind such a resection are teased out by the pathologist. The margins are then inked and coded and standard horizontal frozen sections are prepared. At this point the surgeon waits in the operating room. The reconstructive efforts can not be started until margins are confirmed negative. This delay is unavoidable because tissue transposition flaps and free tissue flaps will distort the anatomy of the defect and make it difficult to resect further margins. Multiple surgeons and pathologist were surveyed and it was confirmed that there is an aspect of estimation that can be improved upon. The current process leaves serious decisions to be made from subjective correspondence.

The Frozen Section Protocol

- The protocol begins with the lesion being resected by the surgeon en bloc. It is then secured to the card with sutures (figure 3).
- The margins will be secured adjacent to the primary lesion with symmetric anatomic orientation if harvested by the surgeon (figure 4).
- In the top left corner a small illustration is made including two well known anatomic locations. An example of this is including the nose and eye for a lesion on the maxillary eminence (figures 5 and 6).
- After resection the surgeon or an assistant will secure the specimen in anatomic position with relation to the illustration.
- An asterisk is marked on the card, by the surgeon, to indicate clinically suspicious margins.
- At least four anatomic locations will be indicated using standardized descriptive terms such as: superior, inferior, anterior, posterior, cephalic, caudal, lateral, medial and superficial. The deep margin will be understood to be touching the card.
- Under the specimen there is an area for written communication. The size of the defect in millimeters and the laterality will be indicated on theses lines. Additional descriptive information is encouraged.

DISCUSSION

It is intuitive that increased objective communication between the surgeon and pathologist will allow for less estimation and increased accuracy and efficiency of frozen and permanent tissue sections. Many of the frozen section literature has focused on nonmelanotic skin carcinomas, but one can appreciate the importance of correct orientation of other tissue specimens with more complicated operations. Neck dissections and other oncologic operations are more complicated and have even larger specimens with a more difficult to orient anatomy. Below are examples of additional useful cards (figure 7).

REFERENCES

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OBJECTIVES

Create an objective and standardized method for clear communication between the surgeon and pathologist while utilizing frozen section processing

Improve accuracy of frozen section analysis of such specimens and enhance communication between surgeon and pathologist to ensure that the final pathology report is optimally clinically relevant

Increase precision of pathologic assessment of margins and clarify the translation from the operating room, to the pathology lab, and back to the operating room

Decrease the need for repeat excision and/or post operative adjuvant therapy

Increase the precision of pathology sections for discussion in multidisciplinary conferences

Frozen Section Cube

Ideally a device comprising of size appropriate foam square with a built in ruler, an image with anatomic landmarks, a lid and pins for a four point fixation would be used. The pins would be color coded to indicate clinically suspicious areas. Included is a prototype of a pathology cube (figures 8 and 9). The dimensions of this prototype are 100mmx100mmx20mm. For larger surgeries larger cubes could be created with specified predetermined landmarks printed onto them.

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