

## Pathology Report

Report Type ..... Pathology Report

### PATIENT HISTORY:

CHIEF COMPLAINT/ PRE-OP/ POST-OP DIAGNOSIS: Laryngeal mass.

PROCEDURE: DL, total laryngectomy, bilateral neck dissection.

BIOHAZARD: No.

SPECIFIC CLINICAL QUESTION: Not answered.

OUTSIDE TISSUE DIAGNOSIS: Not answered.

PRIOR MALIGNANCY: Not answered.

CHEMORADIATION THERAPY: Not answered.

ORGAN TRANSPLANT: Not answered.

IMMUNOSUPPRESSION: Not answered.

OTHER DISEASES: Not answered.

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### ADDENDA:

Addendum

Immunohistochemical stains were performed on block 4K with the following results:

STAIN	RESULT
HPV	negative
P16	negative
EGFR	2+ membranous
JMS	

My signature is attestation that I have personally reviewed the submitted material(s) and the above diagnosis reflects that evaluation.

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### FINAL DIAGNOSIS:

PART 1: LARYNGEAL TISSUE, BIOPSY

INVASIVE SQUAMOUS CELL CARCINOMA.

PART 2: LYMPH NODES, LEFT NECK, LEVELS 2 -4, SELECTIVE DISSECTION

MICROMETASTATIC SQUAMOUS CELL CARCINOMA IN ONE OF TWENTY-FIVE LYMPH NODES (1/25) (<0.1 CM); NO EXTRACAPSULAR SPREAD.

PART 3: LYMPH NODES, RIGHT NECK, LEVELS 2-4, SELECTIVE DISSECTION

METASTATIC SQUAMOUS CELL CARCINOMA IN TWO OF FOURTEEN LYMPH NODES (2/14) (0.5 CM); NO EXTRACAPSULAR SPREAD.

PART 4: LARYNX, TOTAL LARYNGECTOMY

A. INVASIVE SQUAMOUS CELL CARCINOMA, KERATINIZING TYPE, MODERATELY DIFFERENTIATED (2.1 CM) IN LEFT AND RIGHT SUPRAGLOTTIS WITH TRANSGLOTTIC EXTENSION TO LEFT AND RIGHT TRUE VOCAL CORDS.

B. PRE-EPIGLOTTIC AND PARAGLOTTIC SPACE INVOLVEMENT WITH THYROID CARTILAGE

INVASION.

C. ANGIOLYMPHATIC INVASION IS PRESENT, NO PERINEURAL INVASION PRESENT

D. MARGINS FREE OF TUMOR (SEE ALSO PARTS 5-8)

E. PATHOLOGIC STAGE: pT4, N2c.

F. UNREMARKABLE THYROID TISSUE.

PART 5: HYPOPHARYNX, LEFT MARGIN, EXCISION

NO TUMOR PRESENT

PART 6: PHARYNGEAL WALL, LEFT LATERAL, EXCISION

NO TUMOR PRESENT

PART 7: TONGUE, BASE, EXCISION

NO TUMOR PRESENT

PART 8: PHARYNGEAL WALL, LEFT, EXCISION

NO TUMOR PRESENT; FOCAL PAPILLARY HYPERPLASIA.

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GROSS DESCRIPTION:

Part 1 is labeled with the patient's name, initials, xx, MRN and as "laryngeal tissue." Received originally fresh for frozen section and now subsequently in formalin are multiple fragments of tissue that measuring in aggregate approximately 1.2 x 1.0 x 0.8 cm. The specimen is submitted in its entirety in cassette 1AFS for frozen section control within a tea bag.

Part 2 is labeled with the patient's name, initials, xx, MRN and as "left neck, level 2 through 4." Received in formalin is a single fragment of tan, rectangular-shaped tissue that measures overall approximately 10.1 cm x 3.0 x 1.1 cm. The tissue is unoriented and consists of tan, fatty tissue with multiple nodular fragments of tissue grossly consistent with lymph nodes. The sternocleidomastoid and jugular vein are grossly inapparent.

Representative sections are submitted as follows:

2A-2C one end of tissue (with 2A containing four possible lymph nodes, 2B containing three possible lymph nodes, and 2C containing multiple possible lymph nodes)

2D and 2E mid portion of tissue, each containing multiple possible lymph nodes

2F-2H opposing end portion of tissue (with 2F containing bisected lymph node and 2G containing two bisected lymph nodes, one of which is inked blue, and 2H containing multiple possible lymph nodes).

Part 3 is labeled with the patient's name, initials, xx, MRN and as "right neck, levels 2 through 4." Received in formalin is a single fragment of tan, fatty tissue that measures overall approximately 9.8 x 2.5 x 1.1 cm. Upon serial sectioning, there are multiple nodular fragments of tissue grossly consistent with lymph nodes and no grossly apparent jugular vein or sternocleidomastoid muscle. Representative sections of the specimen are submitted as follows:

3A-3B one end of tissue (3A containing bisected lymph nodes, 3B containing five possible lymph nodes)

3C-3D mid portion tissue (3C three possible lymph nodes, 3D multiple possible

lymph node

3E-3F opposing end of tissue (3E containing five possible lymph nodes, 3F containing multiple possible lymph nodes).

Dictated By: [REDACTED]

Part 4 is received fresh labeled with the patient's name, initials xx and designated "total larynx". The specimen consists of a larynx which measures 8.1 cm from superior to inferior, 7.9 cm from left to right and 5.1 cm from anterior to posterior.

A section of ulcerated lesion has been removed for tissue bank that measured 2.1 x 1.7 cm and was supraglottic with transglottic extension to the left and right true vocal cords. The area that has been banked is inked in red. The previously mentioned ulcerated lesion is red-brown in color, transglottic and appears to extend to the laryngeal surface of the epiglottis. There is also a 0.3 x 0.2-cm ulcerated lesion on the false vocal cord and a 0.4 x 0.3 cm ulcerated lesion on the true vocal cord. The lesion appears to extend to within 0.1 cm of the thyroid cartilage on both the left and right sides in the region of the glottis. The area where the tumor extends is tan-yellow in color and firm in texture. Near the anterior commissure, the tumor extends superiorly through the pre-epiglottic space and extends to the pre-epiglottic soft tissue resection margin.

Digital images were taken.

Ink code:

Red banked

Green anterior soft tissue

Black pre-epiglottic space

Orange tissue posterior to hyoid bone.

Representative sections were taken as follows:

A tracheal margin, shave

B right hypopharyngeal margin

C left anterior soft tissue margin

D right anterior soft tissue margin

E pre-epiglottic space

F-H representative transglottic sections from left side submitted from posterior to anterior

I/J section of epiglottis and supraglottic with pre-epiglottic soft tissue

K right transglottic section

L central section of thyroid cartilage

M section of thyroid cartilage on right side

N section of cartilage on left side.

DICTATED BY: [REDACTED]

Part 5 is labeled with the patient's name, initials, xx, MRN and as "left hypopharyngeal margin." Received originally fresh for frozen section and now subsequently submitted in formalin is a fragment of tan-brown tissue that measures approximately 1.7 x 0.6 x 0.4 cm. The specimen is submitted in its entirety in cassette 5AFS for frozen section control within a tea bag.

Part 6 is labeled with the patient's name, initials, xx, MRN and as "left lateral hypopharyngeal wall." The specimen was originally received fresh for frozen section and now subsequently in formalin is a single fragment of tan-brown tissue that measures approximately 2.5 x 0.6 x 0.4 cm. The specimen is submitted in its entirety in a tea bag in cassette 6AFS for frozen section control.

Part 7 is labeled with the patient's name, initials, xx, MRN and as "base of tongue." Received originally fresh for frozen section and now subsequently in

formalin is a single fragment of tan-brown tissue that measures approximately 2.1 x 0.5 x 0.4 cm. The specimen is submitted in its entirety in a tea bag cassette 7AFS for frozen section control.

Part 8 is labeled with the patient's name, initials, xx, MRN and as "additional left pharyngeal wall." Received originally fresh for frozen section and now subsequently in formalin is tan-brown tissue. Currently within the container there are two fragments of tissue, one within the tea bag that measures approximately 1.1 x 0.5 x 0.2 cm. Additionally within the container is a second fragment of tan-brown tissue that measures 1.2 x 0.2 x 0.4 cm. the specimen is submitted in its entirety as follows:

8AFS tissue within a tea bag submitted for frozen section control

8B remaining fragment of tissue.

Dictated By: [REDACTED]

#### INTRAOPERATIVE CONSULTATION:

PART 1AFS: LARYNGEAL TISSUE, TOTAL LARYNGECTOMY (frozen section)

A. MALIGNANT.

B. INVASIVE SQUAMOUS CELL CARCINOMA. [REDACTED]

PART 5AFS: LEFT HYPERPHARYNGEAL MARGIN, TOTAL LARYNGECTOMY (frozen section)

A. BENIGN.

B. NO TUMOR SEEN. [REDACTED]

PART 6AFS: LEFT LATERAL PHARYNGEAL WALL, TOTAL LARYNGECTOMY (frozen section) -

A. BENIGN.

B. NO TUMOR SEEN.. [REDACTED]

PART 7AFS: BASE OF TONGUE, TOTAL LARYNGECTOMY (frozen section)

A. BENIGN.

B. NO TUMOR SEEN. [REDACTED]

PART 8AFS: ADDITIONAL LEFT PHARYNGEAL WALL, TOTAL LARYNGECTOMY (frozen section)

A. BENIGN.

B. FOCAL AREA OF EPITHELIAL HYPERPLASIA OR PAPILLOMA ?. [REDACTED]

#### MICROSCOPIC:

Microscopic examination substantiates the above diagnosis.

The following statement applies to all immunohistochemistry, Insitu Hybridization Assays (ISH & FISH), Molecular Anatomic Pathology, and Immunofluorescent Testing:

The testing was developed and its performance characteristics determined by the [REDACTED] Department of Pathology, as required by the CLIA regulations. The testing has not been cleared or approved for the specific use by the U.S. Food and Drug Administration, but the FDA has determined such approval is not necessary for clinical use. Tissue fixation ranges from a minimum of 2 to a maximum of 84 hours.

This laboratory is certified under the Clinical Laboratory Improvement Amendments of [REDACTED] ("CLIA") as qualified to perform high-complexity clinical testing. Pursuant to the requirements of CLIA, ASR's used in this laboratory have been established and verified for accuracy and precision. Additional information about this type of test is available upon request.

#### CASE SYNOPSIS:

SYNOPTIC DATA - LARYNX RESECTIONS

TYPE OF LARYNGECTOMY: Total

TUMOR LATERALITY: Bilateral

TUMOR LOCATION/SEGMENT: Glottic, Supraglottic, Transglottic  
TUMOR SIZE: Maximum dimension: 2.1 cm  
HISTOLOGIC TYPE OF TUMOR: Squamous cell carcinoma  
HISTOLOGIC GRADE: Moderately differentiated  
STRUCTURES INVOLVED BY TUMOR: True cord, Anterior commissure, False cord,  
Ventricle, Epiglottis, Thyroid cartilage, Pre-epiglottic space, Paraglottic  
space  
LYMPH NODES: Lymph nodes positive, Right: 2  
Total number of right sided lymph nodes examined: 14  
Lymph nodes positive, Left: 1  
Total number of left sided lymph nodes examined: 25  
EXTRACAPSULAR SPREAD OF LYMPH NODE METASTASES  
No  
INTRA-PERINEURAL INVASION: Absent  
VASCULAR INVASION: Yes  
SURGICAL MARGIN INVOLVEMENT: Free (2 mm or more)  
T STAGE, PATHOLOGIC: Supraglottis, pT4a  
N STAGE, PATHOLOGIC: pN2c  
M STAGE, PATHOLOGIC: pMX  
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HISTO TISSUE SUMMARY/SLIDES REVIEWED:

Part 1: Laryngeal Tissue

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 AFS

Part 2: Left Neck Level 2-4

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 A

H&E x 1 B

H&E x 1 C

H&E x 1 D

H&E Recut x 1 E

H&E x 1 E

H&E x 1 F

H&E x 1 G

H&E x 1 H

Part 3: Right Neck Level 2-4

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 A

H&E x 1 B

H&E x 1 C

H&E x 1 D

H&E x 1 E

H&E x 1 F

Part 4: Total Larynx

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 A

H&E x 1 B

H&E x 1 C

H&E x 1 D  
H&E x 1 E  
H&E x 1 F  
H&E x 1 G  
H&E x 1 H  
H&E x 1 I  
H&E x 1 J  
H&E Recut x 1 K  
IHPV x 1 K  
cmet x 1 K  
IEGFR x 1 K  
IBNKNC x 1 K  
IBNKNC x 1 K  
IBNKNC x 1 K  
IBNKNC x 1 K  
IBNKNC x 1 K  
IBNKNC x 1 K  
H&E x 1 K  
IISH x 1 K  
IISH x 1 K  
P16 x 1 K  
V-EGFR x 1 K  
H&E x 1 L  
H&E x 1 M  
H&E x 1 N

Part 5: Left Hypopharyngeal Margin

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 AFS

Part 6: Left Lateral Pharyngeal Wall

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 AFS

Part 7: Base of Tongue

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 AFS

Part 8: Addition Left Pharyngeal Wall

Taken: [REDACTED] Received: [REDACTED]

Stain/cnt Block

H&E x 1 AFS

[REDACTED]

SPECIAL Procedures:

In Situ Procedure

Interpretation

PROBE: LSI EGFR/CEP7 Dual-Color Probe ([REDACTED])

Cytogenetic Location: 7p12 / 7p11.1-q11.1

EGFR FISH STUDIES PERFORMED ON THE SQUAMOUS CELL CARCINOMA ARE POSITIVE.

Number of cells analyzed: 60

Ratio EGFR/CEP7: 1.76

High Polysomy: 34(56.7%)

SNR (signal to nucleus ratio): 4.5

Low Polysomy: 0%

Trisomy: 5(8.3%)

Disomy: 21(35.0%)

PROBE: c-MET\*/CEP7

Cytogenetic Location: 7q31.2 / 7p11.1-q11.1

C-MET FISH STUDIES PERFORMED ON THE SQUAMOUS CELL CARCINOMA ARE POSITIVE FOR AMPLIFICATION.

Number of cells analyzed: 60

Ratio c-MET/CEP7: 2.75

SNR (signal to nucleus ratio): 6.3

High Polysomy: 29(48.3%)

Low Polysomy: 0%

Trisomy: 11(18.3%)

Disomy: 20(33.3%)

\*

My signature is attestation that I have personally reviewed the submitted material(s) and the above diagnosis reflects that evaluation.

#### Results

EGFR FISH analysis was manually performed and quantitatively assessed by analysis of a minimum of 60 cells using the EGFR SpectrumOrange and the CEP7 SpectrumGreen probes.

C-MET FISH analysis was manually performed and quantitatively assessed by analysis of a minimum of 60 cells using the c-MET SpectrumOrange and the CEP7 SpectrumGreen (centromeric) probes.

EGFR FISH positive:

High Polysomy: > four gene copies in > 40% of cells

Gene Amplification: Ratio gene/chromosome more than two or > 15 gene copies in > 10% of cells

EGFR FISH negative:

Disomy: < two gene copies in more than 90% of the cells

Trisomy: three gene copies in more than 10% of cells

Low Polysomy: > four gene copies in more than 10% but less than 40% of cells

c-MET FISH positive:

Gene Amplification: Ratio gene/chromosome more than two or > 15 gene copies in > 10% of cells

c-MET FISH negative:

Ratio gene/chromosome less than two or < 15 gene copies in < 10% of the cells.

References:

[REDACTED]