

**RECOMMENDATIONS FOR THE REPORTING OF TISSUES REMOVED AS PART OF THE
SURGICAL TREATMENT OF MALIGNANT LIVER TUMORS**

THE ASSOCIATION OF DIRECTORS OF ANATOMIC AND SURGICAL PATHOLOGY

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Abstract

The Association of Directors of Anatomic and Surgical Pathology have developed recommendations for the surgical pathology report for primary and metastatic epithelial tumors in the liver. The recommendations are reported herein.

The Association of Directors of Anatomic and Surgical Pathology (ADASP) has organized several committees to develop recommendations regarding the proper handling of surgical specimens and the preparation of the completed surgical pathology report. A committee of individuals with special interest and expertise in liver pathology have presented recommendations which were reviewed and approved by the ADASP council and subsequently by the membership.

The recommendations that are reported herein for primary and metastatic epithelial tumors in the liver are divided into four major areas: (1) informative gross description parameters, (2) diagnostic microscopic features that are recommended to be included in every surgical pathology report, (3) optional ancillary features that might be included in the final report, and (4) synoptic/checklist.

The checklist is generated from published studies on diagnostic features and prognosis for primary and metastatic epithelial tumors in the liver (1-10). This checklist will be focused upon the most common primary epithelial tumors of the liver, hepatocellular carcinoma and cholangiocarcinoma. Also, this checklist emphasizes the handling of liver resections performed for metastatic colon adenocarcinoma, although the checklist could be used for other metastatic carcinomas as well.

The checklist is a handy item not only to use for trainees and seasoned pathologists alike, but also as a synoptic reporting format.

The most widely adopted classification of liver-cell carcinoma is that proposed by the WHO (11) with added modifications (12-22). The grading of liver tumors described by Edmondson and Steiner (21) is a system in which hepatocellular carcinomas are separated into four grades, from I to IV on the basis of histological differentiation. Grade I is the best differentiated consisting of relatively small hepatocyte cells arranged in thin trabeculae. Grade II

tumors consist of hepatocytes which are larger with abnormal nuclei and eosinophilic cytoplasm, and glandular structures may be seen. In Grade III, giant tumor cells are more numerous. The cells of Grade IV tumors are the most poorly differentiated with hepatocytes possessing hyperchromatic, pleomorphic nuclei and little cytoplasm with loss of the trabecular pattern. Most hepatocellular carcinomas are Grade II or III, with diagnostic difficulties most often occurring in the evaluation of W.D. (Grade I) and P.D. (Grade IV) hepatocellular carcinoma.

The pathological staging classification follows that of the pTNM from the UICC (23). Ancillary studies are referenced (24-26)

Features Recommended to be Included in the Final Report

The surgical pathology report for partial or total liver resections should incorporate the following information.

A. General

1. How the specimen was identified: labeled with name, medical record number, surgical pathology number, etc.
2. How the specimen was received: fresh or in fixative.
3. The type of surgical procedure: segmentectomy, trisegmentectomy, partial lobectomy, complete resection.
4. The exact anatomic site of the tumor in the liver.

B. Gross Specimen

1. Weigh the specimen and give the dimensions in length x width x thickness.
Section the liver at 1.0 cm intervals.
2. Measure and describe the lesion(s):
 - a. Mark the resection margin with ink.

b. Description of the distribution of lesion(s).

Measure the lesion(s) in their greatest dimensions.

Is the lesion(s) single or multiple, superficial or deep?

Does it involve the liver capsule, hepatic vein, portal vein or inferior vena cava?

Is the biliary tract and/or the hilum invaded?

Identify the involved liver segment in explants.

- c. Measure the distance between the inked resection margin and the nearest lesion.
- d. Is there pre-existing liver disease?, Cirrhosis, hepatitis, hemochromatosis, etc?
- e. Is there evidence of prior chemo-embolization, radiofrequency ablation (24)?
- f. Evidence of locoregional lymph node metastasis?
- g. Is the gallbladder attached - - describe it.

C. Microscopic Evaluation

1. State whether the tumor is a primary hepatocellular or cholangiocarcinoma, or is metastatic. Describe microscopic peritumoral satellites, if present. A satellite is defined as a tumor nodule in the same segment or less than 2 cm from a lesion and less than 50% the diameter of the larger lesion and less than 4 cm in size even if associated with a large mass. An attempt should be made to distinguish multicentric occurrence from intrahepatic metastasis when two or more nodules are present.
2. State the grade of the hepatocellular tumor (Grade I-IV).

3. Document lymphovascular invasion, if present.
4. Document if the resection margin is free of tumor or not and how closely the tumor is to the inked resection margin.
5. Describe lymph node involvement or lack thereof and the site of the lymph nodes: hilar nodes, celiac nodes or juxtaregional (periaortic-pericaval/other intra-abdominal).
6. Describe foci of small cell and large cell dysplasia if present.
7. Describe dysplastic nodules, regenerative macronodules, and their number, if present.
8. Document underlying hepatic disease, if present, and state the type - cirrhosis, etc. with determination of etiology (i.e. hepatitis B, hemosiderosis, alpha 1 antitrypsin, etc.

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