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When are Gallbladder Polyps Malignant?

ABSTRACT

Furukawa, H., Kosuge, T., Shimada, K., Yamamoto, J., 
Kanai, Y., Mukai, K., Iwata, R. and Ushio, K., Small 
Polypoid Lesions of the Gallbladder. Differential Diagnosis 
and Surgical Indications by Helical Computed Tomogra-
phy, Arch Surg., 133, 735–739.

Objectives: To demonstrate the helical computed 
tomographic (CT) features of small polyloid les-
sions of the gallbladder and to establish a clinical 
strategy based on CT findings for the treatment 
of such lesions.

Design Validation cohort study.

Setting Tertiary care public hospital.

Patients Thirty-one patients with polyloid les-
ions of the gallbladder (≤3cm) underwent CT 
followed by resection.

Main Outcome Measure: The detectability of the 
lesions on both unenhanced and enhanced CT and 
the configuration of the lesions on enhanced CT were 
prospectively evaluated in comparison with the 
histopathological findings.

Results: Unenhanced CT detected 14 (45%) of the 
31 lesions, whereas enhanced CT detected all of 
the lesions. The detection rates of the neoplastic
lesions (adenoma, adenocarcinoma, and metastatic tumor) and cholesterol polyps were 81% (13/6) and 7% (1/15), respectively (P<.001). Among the 20 lesions demonstrated as pedunculated, 6(30%) were neoplastic, whereas 10 (91%) of the 11 lesions demonstrated as sessile were neoplastic (P<.001). When a lesion was demonstrated on unenhanced CT or its shape was sessile on enhanced CT, the case was diagnosed as a neoplastic lesion. The sensitivity, specificity, positive predictive value, negative predictive value, and overall accuracy of the CT diagnosis of the neoplastic lesions were 88% (14/16), 87% (13/15), 88% (14/16), 87% (13/15), and 87% (27/31), respectively. Conclusion: Computed tomography can differentiate neoplastic and nonneoplastic small polypoid lesions of the gallbladder and reliably identify the presence of neo-plastic lesions that should be resected.

Keywords: Helical computed tomography, gallbladder carcinoma.

PAPER DISCUSSION

The report of Furukawa et al., is another study attempting to differentiate benign polypoid lesions of the gallbladder from neoplastic lesions or early gallbladder carcinoma by the use of non-invasive radiological techniques in order to establish a clinical strategy for treatment.

Thirty one consecutive patients who underwent resection for a polypoid lesion of the gallbladder were included in the study. Patients with small polyps (less than 5mm) and hyper-echoic masses, thought to be a cholesterol polyp, were excluded and one should realize that false negative findings (missing a neoplastic lesion) can not be analysed for the entire cohort of patients with a "polypoid lesion".

The authors found that detectability of lesions is much higher (100%) on enhanced CT (EHCT) compared with unenhanced CT (UCT) (45%). The lesions on EHCT were classified as pedunculated 20/31 (65%) and sessile type 11/31 (35%). Most sessile lesions were malignant and cholesterol polyps are more frequently pedunculated. Most neoplastic lesions 13/16 were also identified with UCT, but UCT did not detect the malignant lesion in 3 patients (adenocarcinoma). Therefore, in an attempt to increase the accuracy, they used both techniques with the following criteria; when a lesion was found on UCT or its shape was sessile on EHCT, it was considered as a neoplastic lesion. This strategy increased the overall diagnostic accuracy to 87%.

In past years the size of a polypoid lesion (more than 10mm) was considered an important criterion to remove the gallbladder [1]. In the present study none of the lesions less than 10 mm was malignant and using this old strategy none of the malignant lesions would not have been operated. Cholecystectomy was also performed, however, in 10 patients with cholesterol polyps and two patients with adenoma. The introduction of this new above mentioned strategy might prevent these unnecessary cholecystectomies, however neoplastic lesions with curative options will be missed in 13%.

Shindoh recently suggested that unenhanced CT scan examination is effective for differentiation of benign and malignant lesions [2]. In the present study, however, only 81% of neoplastic lesions were found by UCT. Using these criteria (only UCT) there is doubt if the risk of missing a malignant lesion is acceptable.

It is not clear from both studies whether all patients who had neoplastic lesions not detected at UCT, did not have symptoms. This should be another argument to perform a cholecystectomy in these patients and probably detect the otherwise missed lesions and further decrease the chance of missing a malignancy. It has been shown previously that symptomatic patients with solitary polypoid lesions had a higher risk for developing gallbladder carcinoma [3].

Studies on the natural history of polypoid lesions are limited. Moriguchi reported in an observational study of 5 years in 109 patients that the size of the lesion did not change in 88% and that there was no correlation between the initial size (≤5mm; 6–9mm; ≥10mm) and the percentage with a change in diameter dur-
ing follow-up nor a correlation with age and patient's sex [4]. The authors concluded that most polypoid lesions are benign.

Other are not in agreement and suggest an underestimation of the risk for malignancy, probably because of the patient selection (only 2 single lesions ≥10mm) and a more aggressive approach is recommended [5,6]. Another argument for an aggressive approach is the relatively simple initial surgical treatment with minimal morbidity and mortality and on the other hand the dismal prognosis of gallbladder carcinoma [1,7].

It has been suggested that small lesion in patients without symptoms should not be removed, except for those patients with enlarging lesions or thickening of the gallbladder wall during follow-up by ultrasonography or CT. In the present study the number of small lesions was limited, but all proved to be benign. Recently, however, Shinkai et al., has reported that most cholesterol polyps (97%) are less than 10mm, but the mean diameter of adenoma was 6±3.4mm. Six percent of neoplasms were observed among polyps less than 5mm. Shinkai suggested an aggressive approach regardless of size, in particular for single lesions [3]. One should also realize, although the risk is low, that adenomyomatosis has a malignant potential and in a few patients even carcinoma associated with cholesterolosis has been described [1,8,9].

Most studies have relatively small patient numbers. In addition the selection bias of patients, the lack of sufficient follow-up in nearly all studies with a non surgical treatment strategy and the different findings between studies, preclude a proposal for an evidence based treatment strategy for polypoid lesions of the gallbladder.

Regarding the above mentioned risks, in particular single polyps in symptomatic older patients, polyps larger than 10mm or polyps with an increase in size should be removed. This should also be performed for other polypoid lesions, if patients are not willing to undergo long term careful follow-up.

The use of enhanced CT, however, could prevent unnecessary cholecystectomy in a number of patients, but radiological evaluation during follow-up is indicated.

Another issue not addressed in this discussion is the appropriate approach how to remove the gallbladder, laparoscopically or with an open procedure. For small low risk lesions a laparoscopic approach could be accepted. CT might also be helpful to identify high risk patients for a malignancy. An open approach should be preferred in these patients to prevent post site metastasis.

Dirk J. Gouma
Department of Surgery
Academic Medical Center
MEIBERGDREEF 9
Amsterdam 1105 AZ
Holland

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