Should all gallbladders be examined routinely or selectively by microscopy after cholecystectomy?

Population-based Dutch study over a decade

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Dear Editor

The need for routine histopathological examination of gallbladder specimens after cholecystectomy for benign gallstone disease is debated. The risk of missing small gallbladder carcinomas (GBCs) might interfere with acceptance of a selective histopathological examination policy. The rationale for routine examination is to rule out GBCs that potentially have clinical consequences. On the other hand, routine examination contributes substantially to the pathologist’s workload and has considerable financial implications. Owing to the low perceived risk of incidental GBCs, numerous studies have recommended that surgeons should perform inspection and palpation during or at the end of the cholecystectomy, and adhere to selective examination in patients with macroscopic abnormalities or suspicion. However, it is still unclear whether a selective approach is safe and cost-effective. The aim of the present study was to determine whether a selective policy of microscopic examination of gallbladder specimens is safe from an oncological point of view.

This retrospective study analysed diagnostic and therapeutic pathways of all patients with GBC registered between 2004 and 2014 in the Netherlands Cancer Registry of the southern part of the Netherlands. The clinical consequences for patients with GBC who were diagnosed after cholecystectomy by microscopic examination only (missed case of GBC) were studied. Patients were categorized into four groups (Fig. 1).

Histopathological data from 31,902 cholecystectomy specimens were registered during the 11 years of interest. Of the 205 patients with GBC identified, a total of 109 underwent surgery, 34 because of suspected GBC and 75 for presumed benign gallstone disease. Of the 75 patients with incidental GBC, 37 (49 per cent) had a palpable or visible tumour in the specimen detected by the surgeon. Another 31 patients (41 per cent) had a macroscopically visible tumour detected by the pathologist, who decided on histopathological examination. In the remaining seven patients (9 per cent), a GBC was found incidentally during random sampling of the specimen. The calculated rate of potentially missed GBCs if a selective policy were applied was 0.02 per cent. However, none of these seven patients underwent additional surgery or specific oncological treatment. Based on this analysis, it can be concluded that a policy of selective histopathological examination after cholecystectomy is feasible and likely safe from an oncological perspective.

The rationale for a selective policy is fewer pathological examinations and consequently reduced medical expenses. With application of a selective policy, it has been estimated that one in six gallbladders would be sent for histopathology by the surgeon, resulting in considerable cost reduction. Furthermore, it has been shown that the surgeon should be able to select gallbladders needing microscopic examination. Based on previous studies, the estimated proportion of gallbladders sent for histopathological examination ranged between 7 and 17.2 per cent. A selective policy could save around €1.2–1.8 million for the Dutch population according to the Dutch rate of €60 per specimen. However, the GBC incidence rate varies, and these conclusions might be limited to this low-incidence country and not be applicable in high-incidence countries.

Selective referral for microscopic examination seems to have a negligible rate of missed malignancy in gallbladder specimens that appear normal on gross inspection. A policy of selective examination of gallbladder specimens may be replaced by careful inspection of the gross specimen by the surgeon such that only
specimens with macroscopic abnormalities are sent for microscopy.

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**Fig. 1 Identification of gallbladder during the study interval**

GBC, gallbladder carcinoma.