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Recurrence Rate of Pulmonary Hydatidosis After Surgery: Reply

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To the Editor

We thank Dr. Sokouti and colleagues for their interest in our study. In the letter, Dr. Sokouti summarized some important facts regarding the recurrence of pulmonary hydatidosis following surgical management.

Regarding the follow-up of our study population, as mentioned in the original article, our patients were followed up for a period of 6–60 months [1]. This means that despite the conclusion of Sokouti et al. 6 months was the minimum follow-up period, and most of the patients were followed for a longer time.

Sokouti et al. [2] cast some doubt on the low recurrence rate in our experience following surgery for pulmonary hydatidosis. We had no recurrence during the follow-up period. 6 months to 5 years was demonstrated by several studies to be enough for evaluating recurrence [3], although several others have reported a mean interval of 8.5 years between a diagnosis of initial hydatid cyst and detection of recurrence [4].

To explain why the recurrence rate was zero in our study despite the 29.4 % incidence of perforated cysts, we have to delineate the process of recurrence in pulmonary hydatidosis. Pulmonary hydatidosis may be detected again in a patient who was previously treated surgically for this disease under three possible scenarios: (1) Small cysts might have been missed during the first surgery by the surgeon in the same pulmonary lobe, other lobes of the same lung, or in the contralateral lung. (2) The patient might be experiencing a second affliction of the same process involved in his or her initial hydatidosis infestation (ingesting *Echinococcus* eggs through contaminated vegetables, foods, and so on, which is reasonable in endemic areas). (3) There may have been leakage or spillage of cyst contents during the surgery.

Regarding the first issue, we performed thoracic computed tomography in all patients prior to surgery and examined the collabated lung bimanually during the surgery. This possibility seems less likely to have contributed to a recurrence.

Addressing the second issue, we instructed the patients on how to minimize the risk of reinfection with hydatidosis (e.g., hygienic washing of fruits and vegetables). Also, the patients were administered albendazole to reduce this risk, even with intact cysts.

Regarding the spilling of cyst contents, we should mention some issues here. Sokouti et al. [2] claimed that "Following the surgery, recurrence could occur due to the intraoperative spillage of the hydatid daughter cysts into the pleural cavity". This is debatable as usually there are no daughter cysts in pulmonary hydatid cysts. Daughter cysts in the lung have been reported in the literature only as case reports [5]. Spilling of scolices-containing cyst contents during the surgery in cases where safety rules have not been observed may lead to hydatidosis in the pleural cavity—not to solitary cysts in the pulmonary parenchyma—which have mostly been reported in the cases of recurrence. Solitary cysts are probably due to reinfection, not the spillage of cyst contents during the surgery. We used the enucleation technique in cases with intact hydatid cysts, which minimizes the risk of cyst content leakage. For perforated cysts, it differs according to the endotracheal versus pleural spillage of scolex-containing contents. Up

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until now, there is no report of endotracheal growth of hydatidosis due to cyst perforation because, in that case, hundreds or thousands of pulmonary cysts should be developed in the lung (similar to miliary tuberculosis). With the pleural spillage of cyst contents when a cyst is perforated, the cysts would be detected during the operation by the surgeon. We washed out the pleural cavity precisely with normal saline solution, and albendazole therapy was continued for 6 months in patients with perforated cysts.

We believe that because of the nature of the pleural cavity, the most probable form of recurrence due to negligence about adherence to safety rules and spillage of cyst contents during surgery is pleural hydatidosis. However, long-term administration of albendazole reduces the risk of this complication significantly. Although we have no recurrence in our findings, we suggest implementation of further studies with a larger sample size and longer follow-up.

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