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Efficacy of filtered trocar for clear visualization during laparoscopic cholecystectomy: A prospective randomized controlled trial

STS 2022 | 2022년 9월 16일(금) 경주, 라한 셀렉트 (구. 현대호텔)

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Background : Clear visualization of surgical field is important in laparoscopic surgery. Built-in filtered trocar is originally made to eliminate harmful smoke generated during laparoscopic procedure and it is also regarded as effective instrument to improve surgical view by eliminating smoke. The aim of this study is to evaluate the efficacy of built-in filtered trocar in maintaining clear operative view.

Methods : From September 2019 to August 2020, 100 patients underwent laparoscopic cholecystectomy for chronic cholecystitis due to gallstone or gallbladder polyp and they were randomized to either control or built-in filtered trocar group. Primary end point was laparoscopic operative view score (1, clear; 2, slightly blurry; 3, completely blurry) during dissection of gallbladder from liver bed when dissection was started (LV1), when dissection was done half (LV2) and when dissection was ended (LV3). Secondary end points were time (second) and number of time to suck in smoke during dissection of gallbladder from liver bed.

Results : Between control group and filter group, there were no significant differences in LV1 (1.44 vs. 1.40, p=0.234) and LV 3(1.86 vs. 2.01, p=0.880). However, there were significant differences in LV2 (1.88 vs 1.94, p=0.027). Air suction time during dissection (0.71 vs. 3.35, p<0.001) and number of time to suck in smoke (0.14 vs. 0.55, p<0.001) were significantly more in filter group than in control group.

Conclusions : In filter group, operative view during laparoscopic cholecystectomy was not clearer than that in control group and air suction time or number of suction of filter group were significantly more than those of control group. Built-in filtered trocar is not effective to maintain clear operative view.

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