

## PANORAMIC IMAGE OF THE LAPAROSCOPY AS INDEX OF THE ORIGINAL VIDEO FRAMES FOR LAPAROSCOPIC SURGERY

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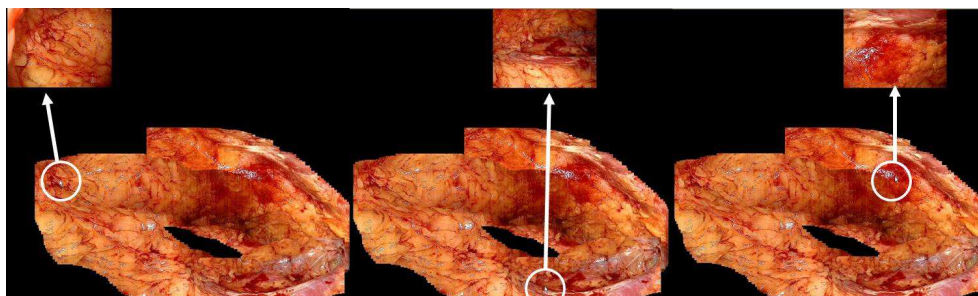
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Introduction and Objectives: Laparoscope and endoscope displays magnified view which is a tradeoff for narrowing field of view. We had tried to display both magnified and panoramic view during laparoscopic surgery as navigation tool, and found the system worked well in reducing blood loss among novice surgeons carrying out retroperitoneoscopic nephrectomies (Int J Urol, 16: 177-180, 2009). However, panoramic picture harbors blind corner during interlacing frames. To overcome this problem, we added a function to call back the original frame corresponding to the points on the panoramic picture and tested its operation using the laparoscopic video files.

Methods: Image mosaicing technology was used to process panoramic picture from laparoscopic video image in shaking or rotating motion. The each frame of the original video was restored and tagged with information indicating the position in the panoramic image. Five laparoscopic video files were tested to process panoramic image and calling back function in response to location of the pointer on the display.

Results: Though time lag was observed in processing the panoramic image from the video files, calling back motion was prompt in each video files. Sliding the pointer on the panoramic image makes the still frames animate in response to motion of the pointer (figure, open circle indicates pointer).



Conclusions: Calling back the original image from the panoramic picture affords precise observation of the operative fields during and after laparoscopic surgery. Combination of magnified, panoramic and sequential

view of the original frames would be useful in navigating surgery and recording surgical course.