

Research Letter

A scoop like injury of external iliac artery caused by Harmonic scalpel

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Dear Editor,

A 62 year old woman, who is known to have a stage 3 ovarian cancer with massive ascites and peritoneal carcinomatosis, has received 4 courses of neoadjuvant (Taxol and Carboplatin) chemotherapy, after that, she was admitted for Laparoscopic maximal debulking surgery, which included; Total Laparoscopic Hysterectomy, Bilateral salpingo-oophorectomy, omentectomy, appendectomy, peritoneal resection and bilateral pelvic lymphadenectomy, a 4 handed surgery was performed with a Lee Huang point as a major port entry, Ethicon® Harmonic scalpel was used as the main instrument, unfortunately; during right iliac lymph node group dissection, an injury has occurred to external iliac artery wall, which was a partial thickness injury involving the muscularis layer.

Harmonic scalpel in laparoscopy, whereas ultrasonic energy is converted into mechanical energy at the active blade, is commonly used, because it can coagulate and dissect at the same time, near vital structures, with less heat production, reducing the risk of thermal injury.

Firing the shears while the blades are closed, when no or a small amount of tissue is present, will results in a very high blade temperatures, and longer cooling times [1,2].

At the same time, cavitation injury may occur, because of the pressure produced by the Harmonic scalpel energy, resulting in separation of tissue planes [3].

Here we report an injury of right external iliac artery that looks like a scoop, caused by Harmonic scalpel, which after exclusion of direct thermal injury while the blade is active, and noticing that the size of injury is 3 times the burnt area, we came with conclusion,

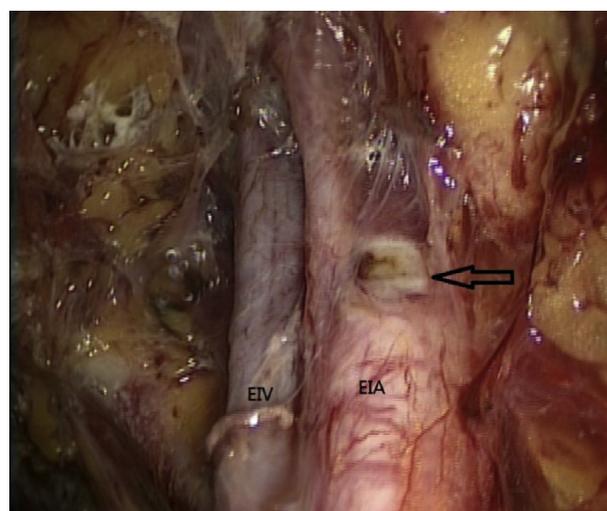


Fig. 1. Laparoscopic image of a scoop like right external iliac artery injury (arrow) caused by Harmonic scalpel during pelvic lymphadenectomy suggested to be due to prolonged harmonic tip cooling with or without cavitation mechanism. EIA is right external iliac artery while EIV is right external iliac vein.

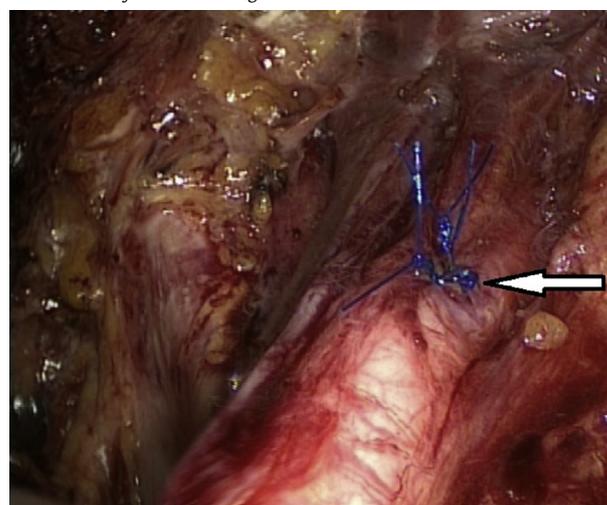


Fig. 2. Laparoscopic view of repaired right external iliac artery after a partial thickness injury caused by Harmonic scalpel, arrow shows 3 stitches of prolene 5-0 used for repair.

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that this injury has either occurred during a long cooling time of the active blade, or as a result of cavitation process or both (Fig. 1).

In this case, we sutured the vessel although it is partially injured, using prolene 5-0, because we think this type of injury may result in vessel wall weakness and aneurysm formation in the future (Fig. 2).

In fact, surgeons must be aware of such an injury during cooling time of Harmonic scalpel and other electrosurgical instruments, at the same time, unawareness of practices that result in heating of the active blade tip to the maximum temperature, may also increase such injuries.

Conflicts of interest declaration

The authors have no conflicts of interest relevant to this article.

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