



Robotic-assisted versus laparoscopic liver surgery: is it the correct direction?

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Still considered a “development in progress” technique during the consensus conference in Morioka, for the paucity of clear data confirming its superiority over traditional surgical approach (1); the robotic liver surgery is progressively gaining momentum as confirmed by the growing number of reports in the literature (2).

Despite the lack of specific robotic instruments for parenchymal liver resection and the absence of a flexible optic, already present in the armamentarium of laparoscopic theatre, many complex liver procedures have been already described, fascinating many surgeons.

The cost associated to the robotic platform and the lack of specific training program confined the robotic approach for this complex surgery into few high-volume centres, so reducing the reproducibility of their findings (3).

In our personal experience, the microdissection and microsuturing capabilities of the robot, associated to a stable camera platform, translate into a higher rate of parenchymal sparing liver resection even for lesions located in deep area of the liver and helped us to embrace progressively complex liver procedures so speeding its application also in difficult operations (4). These capabilities cannot, of course, be demonstrated in a scientific article but it is easy “to feel” them once seated at the surgeon console.

Describing the initial results of 35 patients who underwent to left hepatectomy for malignant tumors, the robotic approach not only showed its safety and feasibility, but it preserved the oncologic adequacy as confirmed by the promising results in terms of disease free and overall survival (5).

Looking at the literature, the results obtained in the

comparative study are not superior neither inferior to laparoscopic or open surgery, so some small robotic liver resections are not justified by the higher cost of the procedure.

If these studies seem to fail in demonstrating the superiority of the robotic surgery over the laparoscopic, at least they provide comparable results between the two techniques, although the first is still in its exploratory phase. Furthermore, the robotic surgery seems to reduce the conversion rate in comparison to laparoscopic (6).

Therefore, considering meaningful comparison of two different surgical approaches mandates that each approach is at or near its plateau phase, and for the robotic approach we still not have a validate surgical technique, in conclusion it could be more productive to focus on creating an International database rather than look at the competition between surgical techniques.

The faster learning curve (7), and the fact that several experience robotic surgeons obtains good outcomes without a huge experience in laparoscopic surgery, it opens the debate regarding the validity of a “step by step” surgical training and the necessity of high laparoscopic skill before starting a robotic programme.

Several initial studies focusing on the cost of the procedure, conclude that the robotic approach has an overall higher cost than laparoscopy; but recent series reported a favourable cost and readmission outcomes of the robotic compared to laparoscopic (8).

As reported, I believe it is not ethically correct to choose the surgical approach according to the cost rather than surgeon comfort and feelings during a complex operation

which require skills and mental preparation (9).

Furthermore, future technological improvements, such as Fire Fly Mode and Augmented reality software, can easily be integrated into the robotic platform (10); in fact, by combining different source of information, the robotic system will lead surgeons towards an image-guided surgery, thus overcoming one of its traditional issue such as the lack of tactile feedback.

In conclusion the interest for the robotic liver surgery is unstoppable, because technology is progressively invading our surgical practice as our daily life; as previously concluded, we should simply leave the aspiration of demonstrating the superiority of a technique over the other and let innovation takes its course.

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