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UROLITHIASIS

Do we really always need gimmicks?

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Nowadays we all can look around with satisfaction. „We” – the urological community, of course. Developments in surgical equipment and successes of new operational techniques contribute to the fact that urology sets the trends in contemporary medicine. Endoscopic and laparoscopic techniques seized a significant volume of interventional procedures, adding a new dimension to urology.

For its significant advancement, endoscopic, laparoscopic and more generally minimally invasive procedures are now the mainstay of contemporary urology. It has become a real cliché to mention that endoscopy is the standard treatment of BPH or nephrolithiasis. We may see a steadily rising number of procedures supported by advanced tools. It is a good thing, it broadens our treatment potential, although it should not overshadow the real, noble purpose: to cure, to operate on a patient by means of the most simple, the most effective and the most harmless technique. Particularly, minimally invasive procedures gain popularity (sometimes, as though, to excess) with a view to reduce surgical trauma, to improve aesthetics and to shorten recovery. Contrary to “conventional” open surgery such operations require specific orientation in a patient’s “inner space” – it means, a proper localization of the object of procedure due to the limited field of view. Targeting of a renal stone during percutaneous lithotripsy is a typical example. Surgeon has to translate and to imagine, two-dimensional pictures seen on the screen of an ultrasound or X-ray equipment or on 2D TV-monitors into virtual 3D arrangement. For this reason, years of long experience in that kind of surgery is of crucial importance.

To move within patient’s body during laparoscopic procedure, the surgeon is aided by new systems of 3D picture conversion, something on the model of popular 3D TV sets. But one of the main challenges for successful outcome of any given minimally invasive surgery still remains a choice of optimal access to the point of interest (let’s say to the renal stone). Fortunately, tech-enthusiasts, some of them even from outside the sphere of medicine, rushed to our

aid. Last years brought numerous papers concerning 3D reconstruction of plain images to meet surgeon’s requirements. Much to my surprise, I have found that for our everyday surgical duties we should understand a formula like this: $T_s(p) = \eta(IIS(P_s(p_k))I_{I_2} - IIp_{I_2})C(P_s(p_k))$ [hell’s bells !!!!!], or even more frightening ones, believe me [1, 2].

Now, new content in the forthcoming CEJU presents another amazing paper. Its title starts as follows: “Choice of surgical access...”. Well, well, flawless access to the operated organ determines the right course of the entire surgical procedure, particularly during endoscopy or laparoscopy. This initial step relies mainly upon the surgeon’s personal experience and any kind of a support is cordially welcome. So, please see the article on pages 447 of this issue [3]. Authors integrated tech-heavy equipment and sophisticated software into surgical practice. After reading this paper from cover to cover repeatedly (5 times or maybe more), I am still impressed by an idea presented by authors. I suppose, some of them are veritable tech wizards. Remember, thanks to tech-obsessed enthusiasts we have our modern chip-stuffed marvels at everyday disposal (let alone my slim MacBook I am using for this writing). Hopefully, each technical upgrade, invention or at least plain improvement pushes medicine forward. But we need to be aware that not every „next” step is the „forward” step. The beneficial effects should be tailored to customer requirements, in that case, I mean, patients and doctors.

I have every reason to believe that tech-heavy-assisted (please, forgive such word-formation) surgery is helpful in different fields of interventional medicine as it has been described for cardiac, brain and spine, not to mention urology (for renal tumours). Numerous surgical centres use robot-assisted procedures, though – in truth – its advantages are still unconvincing. Personally, I cast doubt on whether we really need complex and sophisticated systems for exact positioning of ureteral stones. Of course, it also requires thorough preoperative planning but accurate assessment of an ordinary intravenous

pyelography or even of a plain X-ray film is sufficient (or maybe it was so far?). In that case I do not see advantages of 3D assistance compared with old, still comprehensible 2D systems. The application of sophisticated technique described by authors needs data taken from multiple CT scans. I am still uncertain as to whether it is necessary due to high radiation exposure for the patients.

Hard- and soft-ware engineering presented in that paper make a great impression but, in my opinion, is

too advanced in terms of costs and complexity for a procedure like ureterolithotomy.

The above remarks don't alter my positive opinion. It is an interesting manuscript, concise and well written. The novelty of presented possibilities of preoperative 3D-assisted planning captures the imagination. The authors presented in a fascinating way the amazing potential offered by today's technology which, in the future, will become off-the-shelf – it is beyond all doubt. But, my essential notion denotes: is it necessary for every procedure...?

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