

## Extralevator Abdominoperineal Excision for Rectal Cancer: “Extended” is the Only Correct Route

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### ABSTRACT

Abdominoperineal excision (APE) of the rectum is being performed since more than one hundred years, following the technical description of the procedure reported on *Lancet* by Sir Ernest Miles. APE can be performed either medially to the levator ani (intersphincteric APE) or removing it by sectioning the muscle at its pelvic attachment (extralevator APE, ELAPE). However, some publications recently introduced the concept that the procedure can be classified “standard” or “extended” (“extralevator”). This concept should be carefully examined to avoid confusion.

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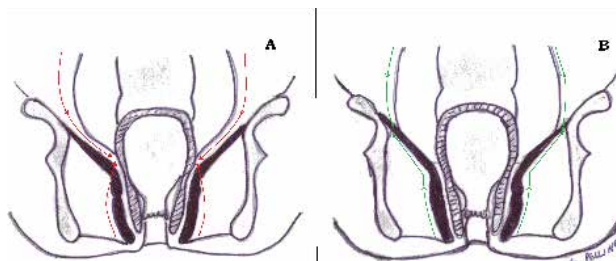
**Key words:** Abdominoperineal resection; Abdominoperineal excision; APE; APR; Extralevator

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### ELAPE FOR RECTAL CANCER

The abdominoperineal excision (APE) of the rectum – also defined as abdominoperineal resection (APR) – was first described in details by Sir W Ernest Miles in 1908<sup>[1]</sup>. Since then, it has been widely adopted. In more recent years, an issue was raised because of the higher rate of local recurrences observed after APE than with sphincter saving total mesorectal excision (TME), which also implied poorer surgical results in terms of reoperative pelvic surgery<sup>[2]</sup>. Several researchers

pointed out, hence, that this was due to APE being performed with a so called “standard approach”, meaning that during the abdominal time of APE the levator ani is not sectioned at its attachment to the pelvis, following the muscle until the rectal wall is reached and dividing these structures. Then the excision is continued to the perineum. Consequently, the need for an “extended” route was reported, consisting in the section of the levator ani as proximal as possible to the pelvic wall, allowing to excise a cylindrical specimen (Figure 1). This ‘innovative’ procedure [extralevator APE (ELAPE)] was reported to achieve much better results in terms of radicality and recurrence-free survival<sup>[2,3]</sup>.



**Figure 1** A: “Standard” (incorrect) abdominoperineal excision. Separating the levator ani from the rectum reduces the chances of achieving tumor-free circumferential resection margins and increases the risk of perforation. This is very high for cancers located at the point where arrows coming from upside and downside meet. Red lines/arrows identify the surgical route – inappropriate. B: “Extended” (correct) abdominoperineal excision. The levator ani is divided as proximal as possible to its attachment, avoiding separation between rectum and muscle. The resulting specimen is cylinder-shaped, with wider circumferential resection margins. The risk of perforation is dramatically reduced. Green lines/arrows identify the surgical route – appropriate.

The latter procedure is the one to be performed when carrying out an ELAPE for rectal malignancies. Apart from radicality achieved by a wider excision (with higher rate of free circumferential resection margins), it dramatically reduces the risk of perforation with cancer cells spillage in the body, by avoiding the separation of levator ani from the rectum. In fact, this part of APE is the one which raises the risk of perforation, altogether with anterior dissection during the perineal time of the procedure. In the light of these observations, it seems evident that ELAPE sectioning medially the levator ani should be defined as “incorrect” APE rather than “standard”.

Furthermore, going back to Sir Miles elegant description of APE,

it reads “[...] lateral dissection [of the rectum] is carried down to the upper surface of the levatores ani [...]”, the patient is turned in semi-prone position for the perineal time; “[...] [levatori ani] muscles should be divided as far outwards as their origin from the “white line” so as to include the lateral zone of spread [...]”<sup>[1]</sup>. This further highlights that there is no “choice”: the correct ELAPE must include proximal division of levator ani. Other procedures different from ELAPE or intersphincteric APE are wrong.

Dealing with the large perineal defect which a correct ELAPE may determine could be difficult. However, this must not be regarded as a reason not to perform a cylindrical excision. Surgeons who want to perform ELAPE must learn how to reconstruct the perineal wound or must seek for the collaboration of plastic/reconstructive surgeons, as many choices are available to fill larger defects<sup>[3]</sup>.

In conclusion, in order to perform a correct ELAPE for rectal malignancies, there is no other choice than dividing the levator ani at the pelvic wall attachment, excising it en bloc with the diseased bowel. According to cancer characteristics, APE can be performed going medially to the levator ani without sectioning it (intersphincteric APE); when ELAPE is needed, it must be performed by sectioning the levator ani at its insertion. No midway

options are given. Deliberately performing a “standard” APE, as some papers recently defined it (wrong or incorrect APE would be more appropriate), exposes the patients to avoidable risks thus raising ethical concerns.

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