



The Pathologists' Assistant and Patient Prognosis: Gross Documentation of Mesorectum Status in Advanced Rectal Cancer

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Abstract

In the United States, the rate of colorectal cancer (CRC) is increasing in a subset of patients under the age of 65, particularly involving the distal colon and rectum.¹ Due to the anatomically confined and narrow pelvic region, rectal cancers have an increased risk of locally advanced disease and recurrence after treatment with a historically poor prognosis.¹ Since the 1980's, the use of total mesorectal excision (TME) has been an important advancement in radical surgery for rectal cancer. Complete resection of the rectum with adjacent fat, lymph nodes, and vessels in the TME has been able to achieve lower rates of local recurrence following surgery for rectal cancer.² Accordingly, assessment of the quality of TME can provide valuable information about patient prognosis. With rising rates of early-CRC, the pathologists' assistant (PA) can play a crucial role in documenting mesorectum status. This case highlights the PA's use of gross photography for the documentation of the mesorectum in a locally advanced, rectal adenocarcinoma requiring an anterior pelvic exenteration in a 27-year-old male patient.

Patient History

The patient initially presented to the emergency department for left buttock discomfort. Further work-up including computed tomography (CT) and positron emission tomography (PET) imaging revealed a large pelvic mass with involvement including the seminal vesicles and mesenteric lymphadenopathy concerning for nodal disease. Biopsy of the mass revealed invasive adenocarcinoma of the rectum. The patient underwent neoadjuvant treatment and then a pelvic exenteration for treatment of the residual adenocarcinoma.

References:

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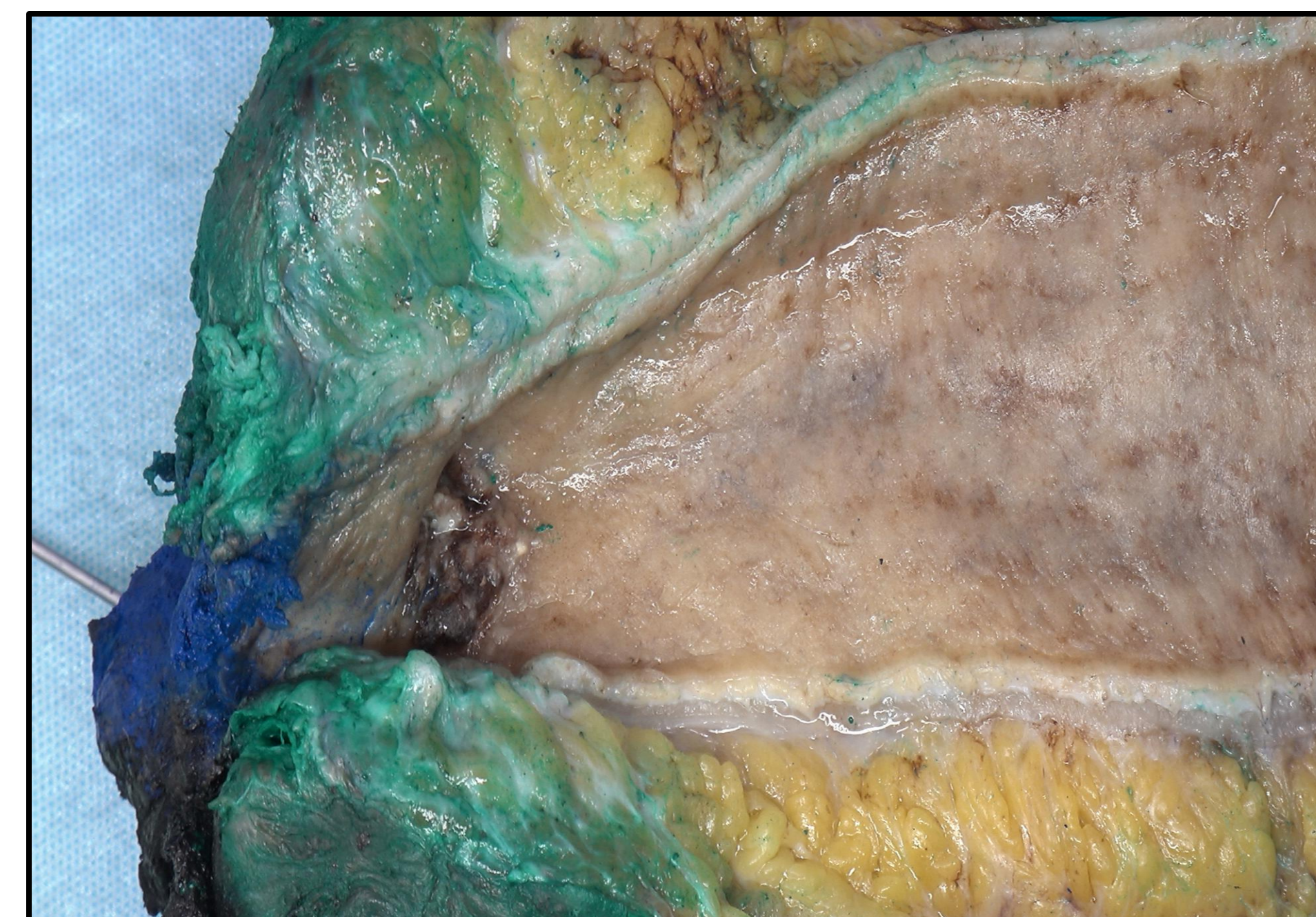


Fig. 1. Rectal tumor ulcer bed and adjacent mesorectum.

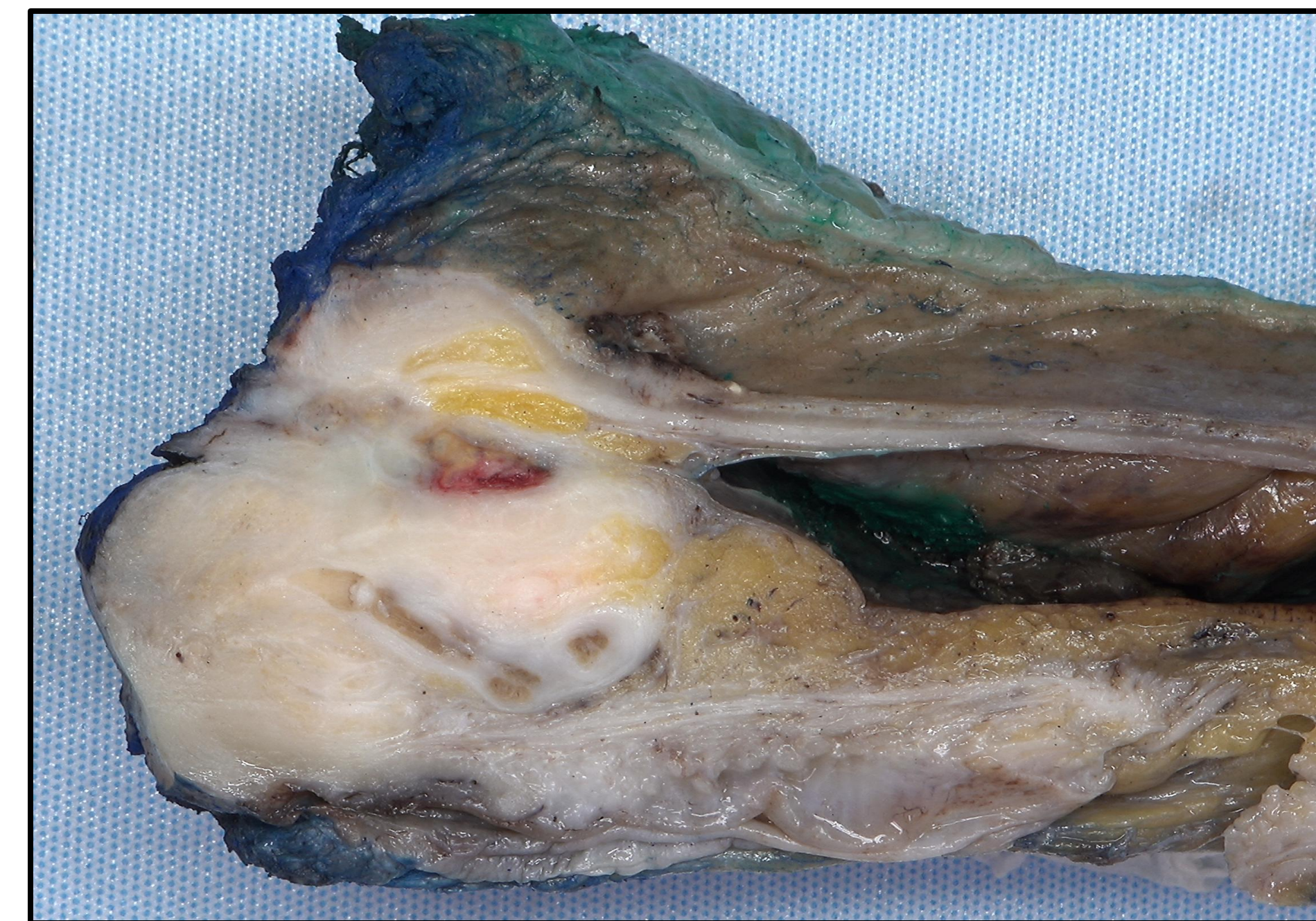


Fig. 2. Cut surface of the tumor with prostate.



Fig. 3. Gross photograph of the mesorectum status at the time of specimen triage before specimen fixation.

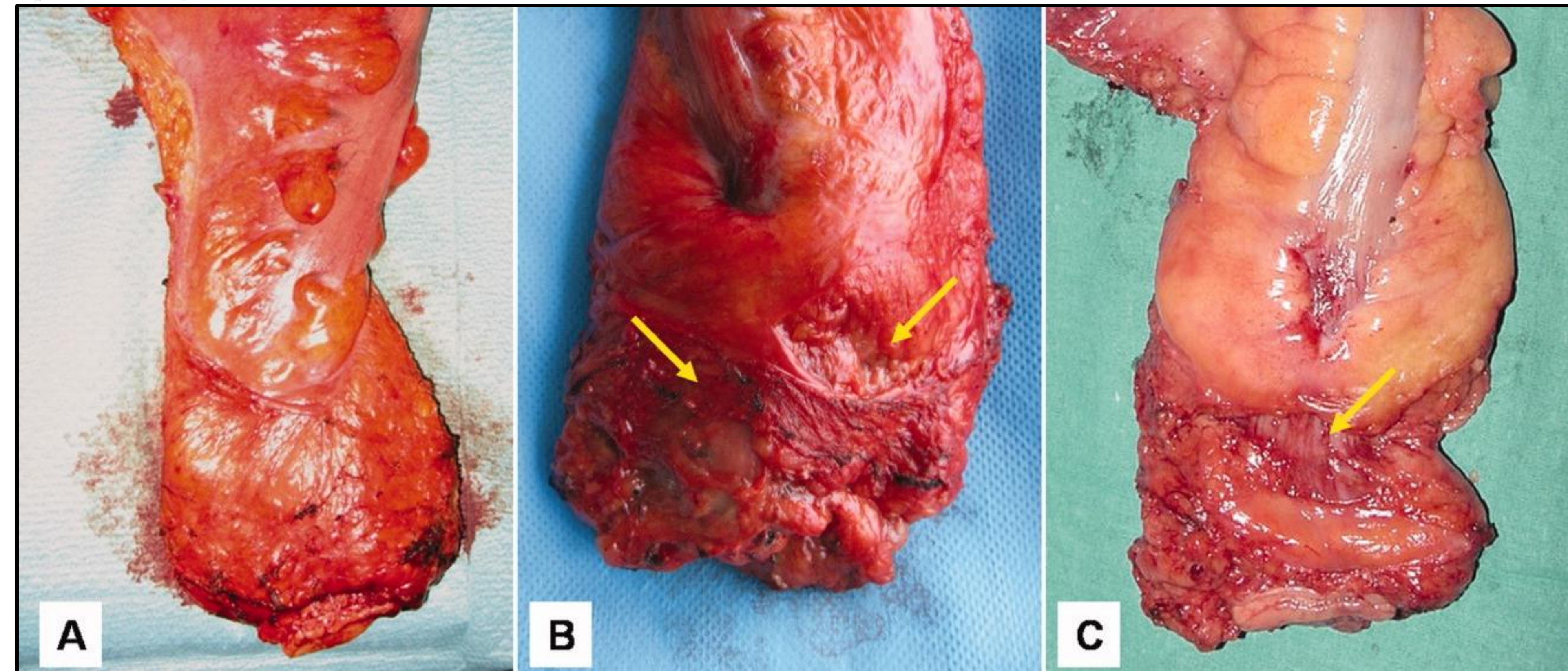


Fig. 4. Diagram of mesorectum status: complete, near complete, and incomplete.

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Gross Examination and Results

The specimen received in the surgical pathology lab included a pelvic exenteration, consisting of a 19.0 cm long x 5.4 cm circumferential segment of rectosigmoid colon with en bloc 7.5 x 4.0 x 1.7 cm bladder and 4.0 x 3.5 x 2.5 cm prostate. The specimen was remarkable for an 8.5 x 3.6 x 2.5 cm infiltrating tumor with ulceration in the distal third of the rectum (**Fig. 1**). Sectioning revealed a white-gray, indurated, and fibrotic cut surface with focal gross invasion into the prostate and left pelvic side-wall (**Fig. 2**).

At the time of specimen triage, the mesorectum margin was grossly assessed by the PA, frozen section pathologist, and the colorectal surgeon: the mesorectum was intact, bulky, with no defects greater than 5 mm. Additionally, multiple gross photographs were taken of the mesorectum for documentation (**Fig. 3**).

Discussion

The quality of TME can be assessed with established criteria (**Fig. 4**). A complete mesorectum displays a smooth surface with minor irregularities < 5 mm. A nearly complete mesorectum displays irregularities > 5 mm with no visible muscularis propria. An incomplete mesorectum displays exposed muscularis propria.³ Mesorectum status is a significant indicator of prognosis, as patients with an incomplete TME have a higher rate of recurrence compared to those with a complete TME.² In this case, gross assessment of the mesorectum by the PA, pathologist, and surgeon is important to ensure no discrepancies on the mesorectum completeness. Additionally, gross photography of the mesorectum when it's received in the lab is important for documentation when signing out of the case and/or during colorectal tumor board.

Conclusion

As rates of early-onset CRC continue to rise and complex multi-organ resections improve with further advancements, thorough documentation of the mesorectum by the PA is an important tool that can affect patient outcomes in rectal cancer.