

# BARRIGEL™ Rectal Spacer CT Visualization

Barrigel rectal spacer is visible as a low-contrast structure on CT.<sup>1</sup> The following tips can help optimize CT visibility.

## CT ACQUISITION

To achieve adequate spatial resolution in the region of interest, a maximum 3mm slice thickness is recommended. Since the gel is tissue-equivalent density, the default Hounsfield unit mappings are appropriate.

**Bowel Prep:** To maintain consistency across the pelvic anatomy, patients should be instructed to have a comfortably full bladder and empty rectum for simulation and treatment, as per institutional standard.

## VIEWING

The general region of the gel is typically easy to identify. Barrigel spacer has soft tissue-like density, and like many lower contrast structures, it can take some experience to discriminate the exact edges of the implant. It's helpful to know what to expect in the image.

### SHAPE AND SIZE

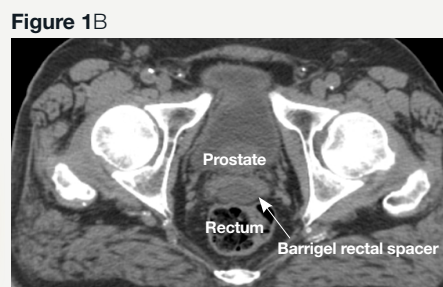
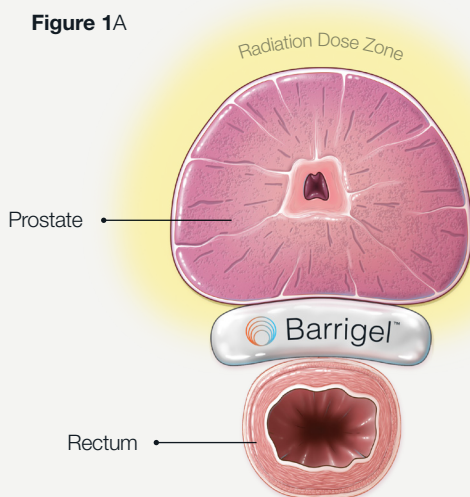
**An ideal implant will have the following shape characteristics<sup>2</sup>:**

- Approximately symmetric tubular implant centered on the midline, with a flattened oval cross-section 1-2cm thick at the middle (minor axis), tapering off smoothly with rounded edges to each side on the axial view.
- Seen on all slices from prostate base to apex (**Figure 1B**), sometimes extending under the seminal vesicles.
- Some visible internal structure to the implant. A couple of distinct boluses may be seen, as in **Figure 1C**.  
**Note: There is no need to contour the internal structure, only the overall space created.**
- **Implant volume ranging from ~6-12cc.** A volume of 9cc of Barrigel rectal spacer is adequate to create a space of 1cm.<sup>3</sup> Patient-specific implant spatial dimensions and approximate volume of gel may also be obtained from the physician performing the implant and/or from the TRUS image.

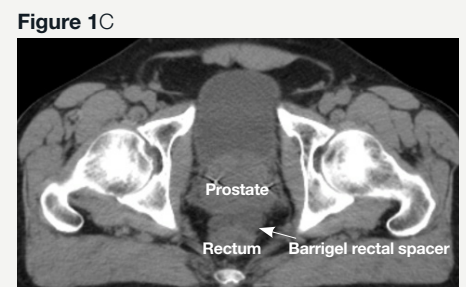
### CONTRAST

**The native contrast-to-noise ratio (CNR) for Barrigel spacer is about 1.9 for a typical pelvic CT.**

- Window and level optimization can help bring out subtle density and texture differences. **Start with the presets for Liver/Cerebellum. This often enhances the Barrigel implant border contrast** (see **Figures 1D and 1E**).
- Expect it to be **slightly darker gray than surrounding tissues in the axial view**.
- It will be **positioned between the anterior rectal wall and the posterior prostate wall**.



**CT image** courtesy of Escalarta López Ramírez, MD, GenesisCare Spain Radiation Oncologist; Madrid, Spain



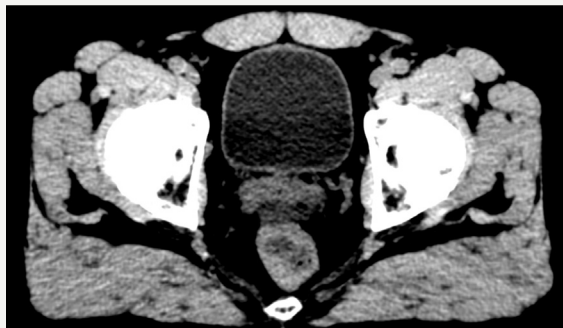
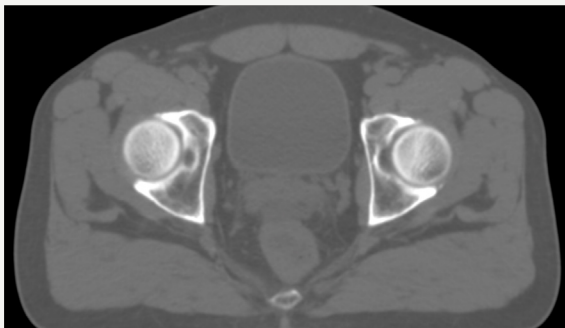
**CT image** courtesy of Glen Gejerman, MD New Jersey Urology Radiation Oncologist; New Jersey, United States

**Figure 1 A, B, C**

Illustration of the nominal appearance of prostate, Barrigel spacer and rectum (**1A**), along with two example patients with Barrigel spacer implants (**1B,1C**). In these axial CT slices Barrigel spacer appears as a slightly less dense (darker gray) rounded layer of gel between the CT prostate and rectum.

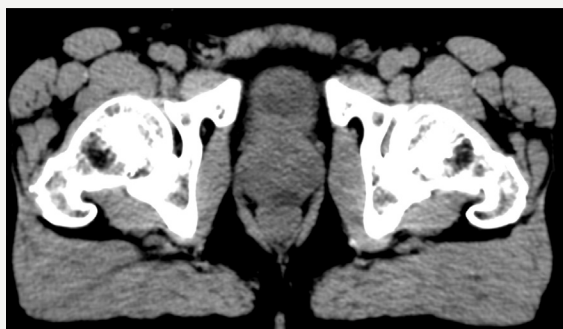
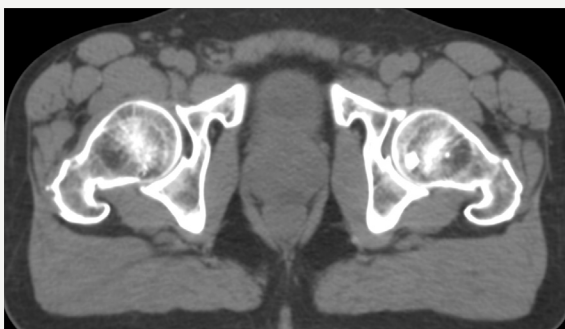
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Figure 1D



CT image sourced from the Barrigel Rectal Spacer Prostate Trial

Figure 1E



CT image sourced from the Barrigel Rectal Spacer Prostate Trial

Figure 1 D,E

**Before (left)** and **after (right)** adjusting window & level settings to enhance contrast and texture

Some imprecision in defining the border of the gel is tolerable, as the quality of the plan will be driven by the target coverage and rectal sparing. Many sites insert fiducial markers during the Barrigel spacer implantation procedure for fast and precise image guidance.

For further detail, please refer to the **Barrigel Rectal Spacer Prostate Radiation Therapy Treatment Planning Guide**. A copy of this guide is available at [iupatientandphysiciansupport@teleflex.com](mailto:iupatientandphysiciansupport@teleflex.com) or by scanning the QR code.



For adverse event reports and product complaint reports, contact:

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**REFERENCES:** **1.** Data on file. **2.** Svatos M, Chell E, Low DA, et al. Symmetry, separation, and stability: Physical properties for effective dosimetric space with a stabilized hyaluronic acid spacer. *Med Phys.* 2024;1-15. <https://doi.org/10.1002/mp.17292>. **3.** Barrigel Injectable Gel Instructions for Use. Santa Barbara, CA: Palette Life Sciences (2022).

Barrigel™ rectal spacer is intended to temporarily position the anterior rectal wall away from the prostate during radiotherapy for prostate cancer and, in creating this space, it is the intent of Barrigel rectal spacer to reduce the radiation dose delivered to the anterior rectum. Barrigel rectal spacer is composed of biodegradable material and maintains space for the entire course of prostate radiotherapy treatment and is intended to be absorbed by the patient's body over time. Barrigel rectal spacer should only be administered by qualified and properly trained physicians with experience in ultrasound guidance and injection techniques in the urogenital/pelvic area. As with any medical treatment, there are some risks involved with the use of Barrigel rectal spacer. Potential complications associated with the use of Barrigel rectal spacer include, but are not limited to: pain associated with Barrigel rectal spacer injection; needle penetration of the bladder, prostate, rectal wall, rectum, or urethra; injection of Barrigel rectal spacer into the bladder, prostate, rectal wall, rectum, urethra, or intravascularly; local inflammatory reactions; infection; urinary retention; rectal mucosal damage, ulcers, necrosis; bleeding; constipation; and rectal urgency. More information on indications, contraindications, warnings and instructions for use can be found in the Instructions For Use at [www.barrigel.com](http://www.barrigel.com).

**CAUTION:** Federal (USA) law restricts this device to sale by or on the order of a physician.

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