

# A non-surgical approach to organ preservation has arrived

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**Typical rectal cancer treatment protocols are intensive and involve several steps, including invasive surgical intervention.<sup>1</sup> The surgical removal of rectal tissues is a standard procedure to treat rectal cancer, in addition to chemotherapy and radiation therapy.<sup>2</sup>**



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This aggressive strategy can pose a risk to the health outcomes of rectal cancer patients. Many patients are over 65 years of age, and finding safe and effective alternative treatments is essential for reducing the risk of morbidity and mortality and improving organ preservation.

There is an urgent need for non-invasive cancer therapies that improve medical outcomes for patients. One emerging approach is the Watch and Wait (W&W) protocol, which avoids surgery and relies on regularly monitoring patients with

no visible tumors after radiation and chemotherapy treatments.

There is a pressing need to improve the Watch and Wait protocol due to concerns with tumor recurrence post-treatment and consequent mortality risk caused by some cancer cells not being destroyed during the initial treatment.

One solution, which can strengthen Watch and Wait efficacy, is contact X-ray brachytherapy (CXB), also known as the Papillon technique. This approach benefits early-stage cancer patients who would otherwise be unsuitable surgery candidates.<sup>1</sup>

This article will focus on how contact X-ray brachytherapy (CXB) offers a non-surgical method to treating rectal cancer and improving organ preservation. The piece will also discuss how a contact X-ray brachytherapy (CXB) boost could enhance the Watch and Wait protocol.

## **Contact X-Ray Brachytherapy boosts rectal cancer response rate**

Contact X-ray brachytherapy (CXB), also known as Papillon CXB, is a form of brachytherapy that specifically targets visible tumors with high dose, low energy X-rays instead of radioisotopes. This technique penetrates only a few millimeters past the tumor, ensuring non-cancerous tissue is unaffected by radiation and the health of surrounding organs is preserved.<sup>1</sup>

Multiple studies have demonstrated that contact X-ray brachytherapy boosts rectal cancer response rate during the Watch and Wait approach. Research by North Cumbria University Hospitals in the UK reviewed 17 patients treated for rectal cancer over six years with contact X-ray brachytherapy boost.<sup>3</sup>

Of the 14 remaining patients, 79% exhibited a complete (no tumors visible) or partial response to the treatment. Contact X-ray brachytherapy boost led to sustained therapeutic response over time in advanced disease levels and high-risk patients.<sup>3</sup>

A French study examined the impact of contact X-ray brachytherapy on organ preservation in 112 rectal cancer patients.<sup>4</sup> Three experimental groups were studied:

- Local tumor removal followed by CXB
- CXB with chemoradiotherapy
- CXB and chemoradiotherapy before complete rectal tissue removal

The first group displayed 96% organ preservation, with the second group displaying 89% organ preservation and a complete clinical response in 96% of patients. Some organ preservation occurred in 86% of patients in the third group.

The scientists concluded that contact X-ray brachytherapy could increase organ preservation and boost other rectal cancer radiation treatments<sup>4</sup>. The clinical approach is suitable for surgical-appropriate and non-surgical patients.

Another clinical study looked at dose escalation effects on tumor regression in 83 rectal cancer patients.<sup>5</sup> This involved 90 Gy of CXB in three fractions over four weeks (a fraction every two weeks). The study used a multi-modal approach, combining CXB treatments with radiation therapy and external beam chemoradiation therapy.

Most of the study's patients observed a complete clinical response, suggesting that contact X-ray brachytherapy could be an effective alternative to aggressive and invasive surgical procedures.<sup>5</sup>

The results of a Phase 3 trial of Organ Preservation for Early Rectal Adenocarcinoma revealed that CXB, also referred to as the Papillon boost, in addition to the Watch and Wait protocol, increases complete clinical response to over 80%.<sup>6</sup>

The Papillon boost can act as a legitimate non-surgical alternative that impacts the general quality of life and mental well-being of rectal cancer patients.

## **Innovating Contact X-ray Brachytherapy treatments for organ preservation in rectal cancer therapeutics**

Contact X-ray brachytherapy is a non-surgical method that supports organ preservation and lowers patient risk in rectal cancer treatment.

Leading life sciences companies, including Ariane Medical Systems, provide

innovative contact X-ray brachytherapy technologies to improve patient health outcomes.

Ariane Medical Systems has developed the Papillon+ X-ray Brachytherapy system that can be adapted to numerous applications, including breast and superficial skin cancer treatment, and performing contact X-ray brachytherapy treatment for rectal cancer.<sup>7</sup>

The Papillon+ X-ray Brachytherapy system is an all-in-one workstation created to prioritize ease of use and safety.<sup>7</sup>

The company's system delivers an efficient method to treat tumours and prevent the need for intensive surgery, particularly for rectal cancer.<sup>7</sup>

The Papillon+ X-ray brachytherapy system from Ariane Medical Systems provides a non-surgically invasive approach that emphasizes patient comfort and positive health outcomes.

*Ariane Medical Systems* is a frontrunner in clinical cancer solutions, offering global technology solutions and services.

Clinicians provide patients with individualized treatments using innovative tools such the Papillon+ X-ray brachytherapy system, which complements clinical approaches, such as the Watch and Wait protocol, and amplifies organ preservation.

More information about *Ariane Medical* contact X-ray brachytherapy technologies and additional medical solutions can be found on the company website. If you are interested in learning more about contact X-ray brachytherapy treatment, contact a member of the *Ariane Medical* team today.

## References

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X-ray brachytherapy: Breast, rectal & skin

### cancer treatment with the Papillon +

Ariane Medical Systems Ltd was incorporated in 2005 to optimize the use of low energy X-rays for the treatment of accessible tumors. Working closely with clinical partners the Papillon50 X-ray Brachytherapy system was developed to treat lower rectal tumors. The Papillon 50 is now treating patients in Denmark, France, Sweden, Switzerland and the UK.

In 2016 the Papillon+ X-Ray Brachytherapy system was developed to deliver an Intra-Operative Radiotherapy (IORT) Boost to tumor beds as well as the tumor

itself.

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