

# Brachytherapy for cervical cancer does not increase the risk of ureteral stricture

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A rare but potentially serious complication following radiation treatment for cervical cancer is a narrowing of the tube (the ureter) that takes urine from the kidneys to the bladder, which can lead to kidney damage and sometimes life-threatening infections. This is called ureteral stricture and, until now, there have been concerns that brachytherapy might increase the risk, although the treatment itself is associated with better survival.

However, new research presented at the ESTRO 37 conference today (Saturday) from two large international trials, shows that intracavitary and interstitial (IC/IS) [brachytherapy](#) is safe and does not increase the [risk](#) of ureteral stricture.

Intracavitary (IC) brachytherapy involves placing an applicator in the uterus, while interstitial (IS) brachytherapy involves inserting needles directly into the tumour. Then the appropriate radiation dose is delivered to the cancer via one or both of these approaches. The procedure is performed after a CT or MRI scan has pinpointed the exact position of the cancer, so that the [radiation treatment](#) can be targeted precisely, and this is called image-guided brachytherapy (IGBT).

Dr Lars Fokdal (MD, PhD), a consultant at the Aarhus University Hospital, Denmark, who led the study, said: "These results show that image-guided brachytherapy using intracavitary combined with interstitial techniques is safe and is not associated with more cases of ureteral stricture afterwards compared to using intracavitary techniques alone."

Dr Fokdal and his colleagues looked at data from 1772 patients with [cervical cancer](#) that had started to spread to nearby tissues (locally advanced) who were enrolled in two trials of the treatment - EMBRACE and retro-EMBRACE - that were being carried out in 12 countries. IC/IS IGBT was delivered to 36% of the patients.

After following the patients for between one and 163 months (the middle or 'median' number of

months was 29), 36 patients were diagnosed with the more severe form of ureteral stricture (grade 3-4). The overall risk of developing grade 3-4 ureteral stricture was 2% after three years and 3.2% after five years. The risk was lowest (1.3%) among the 1370 patients with small tumours, and highest among the 130 patients with more advanced cancer and who had ureters swollen due to a build-up of urine (hydronephrosis) at the time of diagnosis. In these patients the risk of ureteral stricture was 13.6% after three years and 23.4% after five years.

"The incidence of ureteral stricture in cervical cancer patients generally is between 2-3%, so the overall risk of developing the complication after IC/IS image-guided brachytherapy compares well. It is good to know that the interstitial component of IGBT does not increase the risk of this relatively rare but sometimes serious complication. However, the risk is more pronounced in patients with advanced stage and hydronephrosis at diagnosis," said Dr Fokdal.

"There are different strategies that can be used to avoid ureteral stricture in the subset of patients who are at higher risk. One strategy could be closer observation following IC/IS IGBT so that ureteral strictures could be spotted earlier before they become too severe. Another strategy could be insertion of ureteral stents before radiotherapy in order to visualise the organ on imaging and reduce the dose delivered during brachytherapy."

He continued: "Results from the retro-EMBRACE and EMBRACE trials have also shown that IC/IS image-guided brachytherapy is associated with a better outcome for patients in terms of survival and adverse side-effects. The increased, but targeted radiation dose to the tumour controls the cancer better without adversely affecting nearby organs and tissues. Taking all these results together, we have growing evidence in favour of IC/IS IGBT for treating cervical cancer."

Symptoms of a ureteral stricture include back pain, loss of kidney function and a risk of severe kidney or urinary tract infection. It is treated either by widening the blocked tube and inserting a stent to keep it open or by inserting a tube directly into the kidney through the skin that is connected to a urine collection bag secured to the patient's back. Some patients will need this for a short time, but for some it may be permanent.

President of ESTRO, Professor Yolande Lievens, head of the department of radiation oncology at Ghent University Hospital, Belgium, said: "These results from the EMBRACE and retro-EMBRACE trials provide reassuring evidence on the benefits of combining interstitial and intracavitary brachytherapy to treat cervical [cancer](#) patients. While the study showed that patients who are at higher risk of complications can be identified, thus allowing us to monitor them more closely and maybe use a slightly different treatment approach to decrease their risk, it also clearly illustrated that using the latest technology translates into better outcomes and value for our [patients](#)."

**More information:** Abstract no: OC-0072, "Risk factors for ureteral stricture after IGABT in cervical cancer: results from the EMBRACE studies", Gynaecological brachytherapy session at 10.30 hrs (CEST) on Saturday 21 April, Room 129-130.

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