Application of flexible transanal port for excision of rectal tumours
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What about the new techniques that were described in the NTvG a few years ago? Are they now part of the current medical practice or is the enthusiasm tempered?

In 2010 the first report of the application of the flexible transanal port ('operation platform') for the excision of rectal tumours was published. Due to the enhanced vision it provides, adenomas and small malignant rectal tumours can be radically resected with significantly fewer recurrences than with endoscopic mucosal resection or transanal excisions done without this platform. The use of this platform is economically efficient and more intuitive than transanal endoscopic microsurgery, while the quality of the local resection, the risk of postoperative complications and the functional and oncological outcomes all appear to be comparable. This is the reason that this flexible platform is now in use in most Dutch hospitals. The flexible port has led to an increase in rectal sparing treatment for low-risk T1 rectal carcinoma. Nowadays, this platform is also used for the transanal approach during radical rectal surgery for high-risk rectal carcinomas and for rectal operations in patients with benign conditions in the pelvis minor such as severe endometriosis or Crohn's disease.

We described the development of the transanal approach for local resection of rectal tumours five years ago.[1] Ever since this technique was first described in 2010, multiple papers have been published, using various terms: 'transanal minimally invasive surgery' (TAMIS), 'transanal single-port microsurgery' (TSPM), and 'single-site laparoscopic access system' (SSL). All of the above use a flexible transanal access port with standard laparoscopic instruments for the local removal of rectal tumours (Figure 1). In this article we will review the results and further developments of this technology, that was new five years ago. The application of the flexible transanal port can be seen on a video of a transanal total mesorectal excision (https://rectalcancersurgery.eu/tatme-courses/how-to-video).

TAMIS, the most common generic term, is a cheaper, easier to learn alternative to transanal endoscopic microsurgery (TEM), for which a rigid proctoscope with specific instruments is used. The results of both techniques regarding quality of local resection, postoperative complications, functional and oncological outcomes appear to be comparable.[2,3]
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Summary
In 2010 the first report of the application of the flexible transanal port (‘operation platform’) for the excision of rectal tumours was published. Due to the enhanced vision it provides, adenomas and small malignant rectal tumours can be radically resected with significantly fewer recurrences than with endoscopic mucosal resection or transanal excisions done without this platform. The use of this platform is economically efficient and more intuitive than transanal endoscopic microsurgery, while the quality of the local resection, the risk of postoperative complications and the functional and oncological outcomes all appear to be comparable. This is the reason that this flexible platform is now in use in most Dutch hospitals. The flexible port has led to an increase in rectal sparing treatment for low-risk T1 rectal carcinoma. Nowadays, this platform is also used for the transanal approach during radical rectal surgery for high-risk rectal carcinomas and for rectal operations in patients with benign conditions in the pelvis minor such as severe endometriosis or Crohn’s disease.

Which technique?
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What is known about the effectivity?
TAMIS, the most common generic term, is a cheaper, easier to learn alternative to transanal endoscopic microsurgery (TEM), for which a rigid proctoscope with specific instruments is used. The results of both techniques regarding quality of local resection, postoperative complications, functional and oncological outcomes appear to be comparable.[2,3]
The flexible access port - instead of TEM may be based on a surgeon preference, availability and oncological outcomes. Therefore, the researchers concluded that choosing an operating platform - at baseline.

This study, in accordance with the smaller studies, showed no difference between TAMIS and TEM in the completeness of the resections, postoperative complications and functional results and high morbidity rates.

The indications for TAMIS are the same as those for TEM. Through time, both techniques are easier to access. Particularly in obese men, we expect that the flexible access port will make it possible to remove the mesorectum completely, with less risk of a conversion to an open procedure.

Figure 1 Flexible transanal port for the excision of rectal tumour
In transanal minimally invasive surgery (TAMIS), rectal tumours are resected transanally. For this operation a flexible transanal port is used as an ‘operation platform’.

What is known in the literature?
The current literature on the comparison of TAMIS with TEM is limited and mainly consists of small cohort studies. In the largest cohort study, the two groups were matched by patient characteristics at baseline.[3] This study, in accordance with the smaller studies, showed no difference between TAMIS and TEM in the completeness of the resections, postoperative complications and oncological outcomes. Therefore, the researchers concluded that choosing an operating platform - the flexible access port - instead of TEM may be based on a surgeon preference, availability and costs.[3]
**Which indications are there presently?**

The indications for TAMIS are the same as those for TEM. Through time, both techniques are applied more often for various indications. The main indication is the local removal of large adenomas, concerning which, the Dutch TREND study showed fewer recurrences after TEM than after endoscopic mucosal resection of large adenomas. For rectal cancer, radical surgery in which the entire rectum is removed, is the standard. This operation, however, often has disappointing functional results and high morbidity rates.

In the current guideline for colorectal carcinoma, the rule that the entire rectum must be removed in patients with rectal cancer knows one exception: in patients with low-risk T1 rectal carcinoma - well to moderately differentiated, no lymphangio-invasive or vaso-invasive growth, diameter <3 cm including tumour free margins - local removal and intensive follow-up is sufficient (source: www.oncoline.nl, primaire behandeling rectumcarcinoom).

With the introduction of the population screening for colorectal carcinoma in 2014, the incidence of large adenomas and early carcinomas has started to increase, resulting in an increased number of patients that are eligible for TAMIS. However, diagnosing early carcinomas preoperatively appears to be challenging. In 13-45% of the patients that underwent biopsy in the context of the population screening, a carcinoma was found unexpectedly in pathological analysis; additional radical surgery is required in 53% of these patients (source: www.dica.nl/jaarrapportage-2016/dsca).[4,5]

The TAMIS procedure has thus become an important element of the 'step-up approach' for rectal carcinoma and is used to determine whether radical surgery is necessary, thereby aiming to prevent overtreatment. Currently, a multicentre study in the Netherlands is being conducted aiming to discover if additional radical surgery after local excision can be replaced by rectal sparing treatment with additional chemotherapy and radiotherapy (www.tesartrial.nl).

The flexible access port - the 'TAMIS platform' - is also used for other indications. The platform can also be used for radical rectal surgery; as in fact, a large part of the dissection in the small pelvis is performed transanally. A transanal approach is advantageous because it makes the small pelvis easier to access. Particularly in obese men, we expect that the flexible access port will make it possible to remove the mesorectum completely, with less risk of a conversion to an open procedure. Whether the long-term results are similar, is now being researched in a large multicentre study, the COLOR III trial (www.color3trial.com). When patients with Crohn's disease, ulcerative colitis or women with severe endometriosis have to undergo an operation of the rectum, the TAMIS platform may also be of additional value.
**Have expectations been met?**

Limited investment costs for the equipment and limited difficulty of performance of the intervention enable the TAMIS platform to be used for local excision of rectal carcinomas in a large number of hospitals. Several Dutch surgeons with TAMIS experience are now being trained and coached in the introduction of the transanal technique for total mesorectal excision (TaTME). The flexible access port has not replaced the transanal endoscopic microsurgery completely, but it does contribute to the development of new rectum sparing therapies aiming for improvement of quality of life while maintaining oncological safety.

**Where in the Netherlands?**

Almost all Dutch hospitals in which rectal operations are performed, use a transanal flexible access port for the local resection of rectal tumours.
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References