

# Metoidioplasty in Norway: A 13-year Experience from a National Center

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**Background:** Genital surgery is often considered the final step in surgical gender-affirming treatment. Metoidioplasty is a variant where the enlarged clitoris is lengthened and straightened. The technique has several advantages but is not without complications. We evaluated the surgical outcomes after metoidioplasty from our national center from 2007 to 2020.

**Methods:** All patients who had undergone the metoidioplasty procedure at Oslo University Hospital from January 1, 2007, to December 31, 2020, were identified by the Local Quality Register of Gender Incongruence. Demographic, clinical, and surgical variables were recorded. Statistical analysis was carried out with SPSS.

**Results:** A total of 84 patients were identified. The median age at the time of surgery was 27.5 years. Of 84 patients, 48 (57.1%) experienced some kind of complication after the surgery, with an average of 1.7 complications. Complications related to the urethroplasty were the most common, with strictures occurring in 19 (22.6%) patients and urethral fistulas occurring in 11 (13.1%) patients. Forty-one patients (48.8%) needed 1 or more secondary procedures. After the management of strictures and fistulas, a secondary testis implant correction was the most frequent revision procedure performed in 38.1% (32) of patients. With increasing body mass index, the risk of complications and of undergoing secondary procedures also increased significantly ( $P = 0.045$  and  $0.019$ , respectively).

**Conclusions:** Metoidioplasty is an operation with a relatively high complication rate, mainly related to urethroplasty. There is an urgent need for future research with a focus on quality of life and long-term follow-up. (*Plast Reconstr Surg Glob Open* 2024; 12:e6307; doi: [10.1097/GOX.00000000000006307](https://doi.org/10.1097/GOX.00000000000006307); Published online 20 November 2024.)

## INTRODUCTION

Genital surgery is often considered the final step in surgical gender-affirming treatment. In the Nordic countries and the United Kingdom, we have seen an increase in

people seeking gender-affirming treatment. The increase is mainly seen among those assigned as female at birth, or female-to-male (FtM) patients.<sup>1</sup> The choice to undergo gender-affirming genital surgery has a great impact on that person's life.

For the FtM patient, there are mainly 2 surgical options when it comes to constructing genitals with a traditional male appearance. These include phalloplasty, from the Greek word *phallos*, which means to inflate or swell, and metoidioplasty, from the Greek words *meta*, which means toward, and *oidion*, which means male genitalia.<sup>2–5</sup>

The metoidioplasty technique uses the enlargement effect that testosterone has on the clitoral tissue to construct a small neophallus.<sup>6,7</sup> This was first described by Durfee and Rowland<sup>8</sup> and was further developed by several other surgeons from the first half of the 1990s.<sup>7,9–13</sup> It has since gained popularity and is an option for patients who do not want a large donor defect and who prefer a 1-stage procedure. The size varies between 4 and 7 cm, and it is reported that most patients are able to void standing up after the procedure.<sup>2,14,15</sup> Another advantage with this approach is keeping the clitoral tissue, and in this

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way, the possibility of erectile and erogenous function is preserved.<sup>4</sup> The procedure has been performed at the Oslo University Hospital (OUH), Norway's national center for gender incongruence, since 2007. There are several challenges in gender-affirming genital surgery for the FtM patient. The main challenge is how to lengthen the urethra and preserve a well-functioning urinary system at the same time.<sup>2</sup> The frequency of urologic complications related to the metoidioplasty procedure is reported differently in the current literature and ranges from 8.9% to 35%.<sup>10,16–20</sup> For many FtM patients, undergoing this kind of surgery is an important step to living and feeling as their perceived gender. Still, the number of patients who wish to undergo genital-affirming surgery remains at a low level.<sup>21</sup> This patient group has not previously been examined in Norway, and there is a need for a systematic evaluation of the technique. The aim of this study was therefore to assess the surgical outcomes of all patients operated on with metoidioplasty from when the technique was introduced in Norway in 2007 to 2020, with a focus on complications and urologic outcomes.

## MATERIALS AND METHODS

This study included all 84 patients who underwent metoidioplasty at OUH from January 1, 2007, to December 31, 2020, as identified by the Local Quality Register of Gender Incongruence. OUH has the only national center for gender incongruence in Norway. Variables were extracted from the Quality Register, which was designed based on an earlier retrospective chart review of all consecutive patients. The contraindications to undergoing genital surgery were active smoking, body mass index (BMI) more than 30 kg/m<sup>2</sup>, modest or no growth of the clitoris, or ongoing psychiatric disease requiring active treatment.

The gender incongruence diagnosis is set by a team of experts according to the World Professional Association for Transgender Health Standards of Care for the Health of Transgender and Gender-Diverse People, version 8.<sup>22</sup> In Norway, this treatment is offered by the public health system.<sup>23</sup> All patients had undergone laparoscopic hysterectomy with bilateral oophorectomy in advance. All decisions to undergo this procedure were based on individual evaluations, and exceptions from the contradictions were made over the course of time. Three different surgeons performed these operations during this time period.

### Clinical Data Collected

#### Patient Demographics

Patient demographics included age at surgery and weight and risk factors (BMI, smoking status).

#### Surgical Data

Surgical data included age at surgery, surgical technique and time, length of hospitalization, number and type of complications, and number of revision procedures.

#### Complications and Revisions

Complications were defined as any deviation from a normal postoperative course and included wound or

## Takeaways

**Question:** Evaluating the experience with metoidioplasty from the last 13 years from our national center, how are we doing in regard to surgical outcomes and complications?

**Findings:** This retrospective cohort study found that the levels of complications related to urethroplasty are at 35.7%. Completing the surgery as a 1-stage procedure without further corrections occurred in 36 patients (42.9%). With an increasing body mass index, the risk of complications and the need to undergo revision procedures increases significantly.

**Meaning:** Metoidioplasty is an operation with a relatively high complication rate, mainly related to urethroplasty. Elevated body mass index can be a risk factor for complications and secondary procedures.

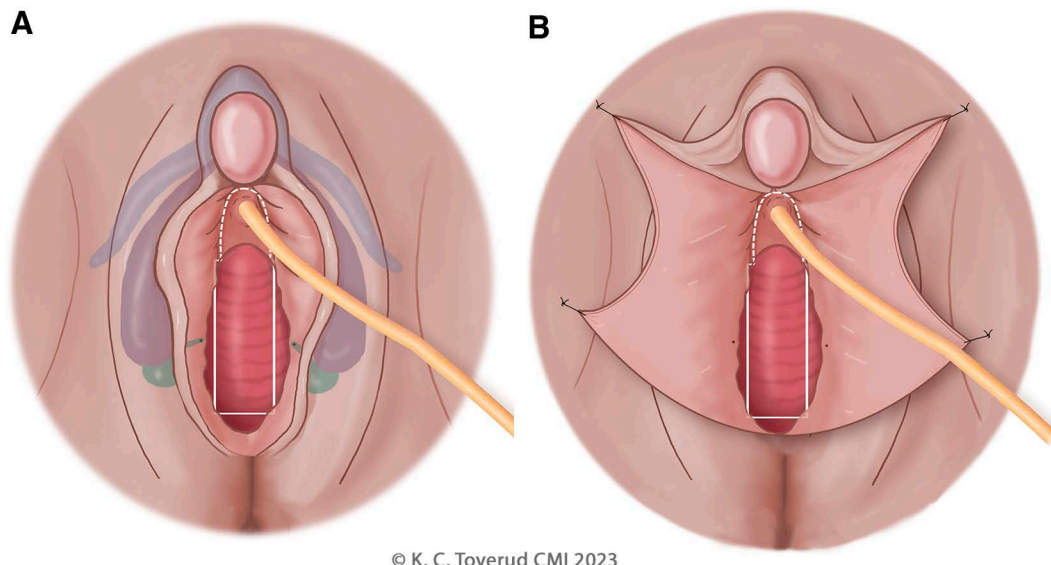
urinary tract infection; postoperative bleeding; wound rupture; other urinary tract complications such as urine retention, urethral fistulas, and strictures; and complications related to the testicular prosthesis. Only complications related to the procedure were considered. Revision surgery was defined as any procedure needed to correct an unsatisfactory first result. These were divided into urologic management and secondary procedures to complete the surgical result. A stricture was defined as any narrowing of the urethra giving symptoms such as feeling of incomplete bladder emptying, hesitancy, a slow urine stream, or urine retention. Follow-up time after surgery was registered as the last contact the patient had with the hospital at the time of data extraction.

### Surgical Technique

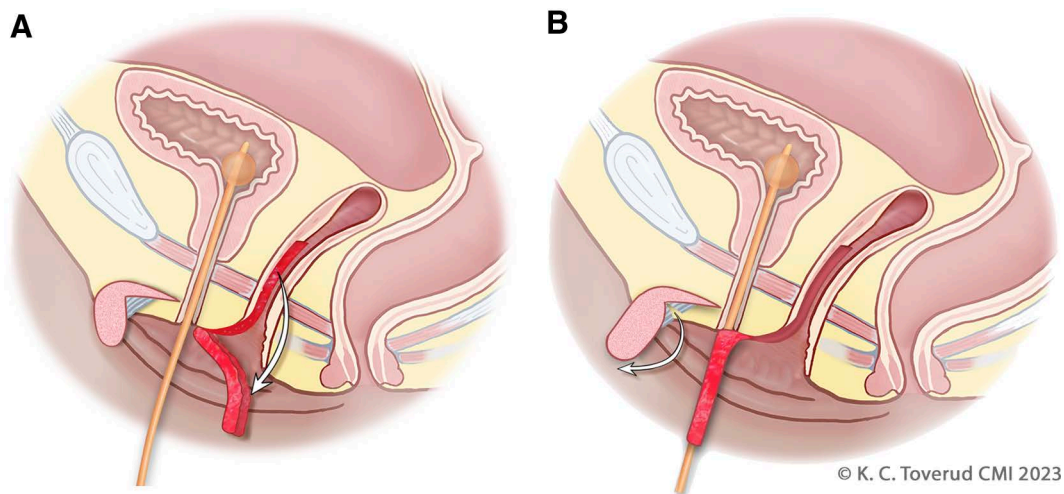
The patient is put in a lithotomy position under general anesthesia. An intravenous antibiotic prophylaxis with cefotaxime 2g and metronidazole 1.5g is routinely given. See [Figures 1–6](#) for the description of the surgical technique and [Figures 7](#) and [8](#) showing preoperative and postoperative images. In our study population, the patient receives urethral lengthening and insertion of testicular implants without vaginectomy. There have been only a few customizations of this technique during this time period. All patients undergo urethral lengthening using the anterior vaginal wall flap. The rest of the lining of the vaginal canal is not removed. A small opening is left to reduce the risk of perforation of the surrounding structures and the potential for mucocele development. The technique aims to give all patients testicular implants in the primary surgery, but this is decided upon after individual assessment. After surgery, the patient stays in bed and rests for 4–5 days with postoperative oral antibiotics and low-molecular-weight heparin treatment. The patient is discharged from the hospital after approximately 1 week. The urinary catheter is removed in the outpatient clinic after 3 weeks. All of the patients are routinely examined after 3–6 months.

### Statistical Analysis

The data were collected from a quality register and transferred to the Statistical Package for the Social



**Fig. 1.** The preoperative appearance. First, a 2.5–3-cm-wide pedicled full-thickness mucosa flap from the anterior vaginal wall (A) is dissected free to create the proximal urethra (B). Printed with permission from © Kari C. Toverud.



**Fig. 2.** This illustration gives an overview of the anatomic structures in a cross section. A, The pedicled vaginal wall flap is raised forward and sutured around a Charrier 16 urine catheter. B, The enlarged clitoris is loosened surgically from its ligaments and straightened. Printed with permission from © Kari C. Toverud.

Sciences, version 26 (IBM, Armonk, NY) for statistical analyses. The data were analyzed in spring 2022. Descriptive data are summarized as frequencies with means and SDs and as medians and ranges. Logistic regression analyses were used to examine risk factors. A 5% level of significance was considered statistically significant.

#### Ethical Approval

The data were extracted from the local register of gender incongruence that is approved by the Norwegian Data Protection Agency. This study was approved by the local data protection officer at OUH. According to Norwegian legislation, neither approval from the ethics committee nor informed consent from the study population is required for registry studies where the project aims to

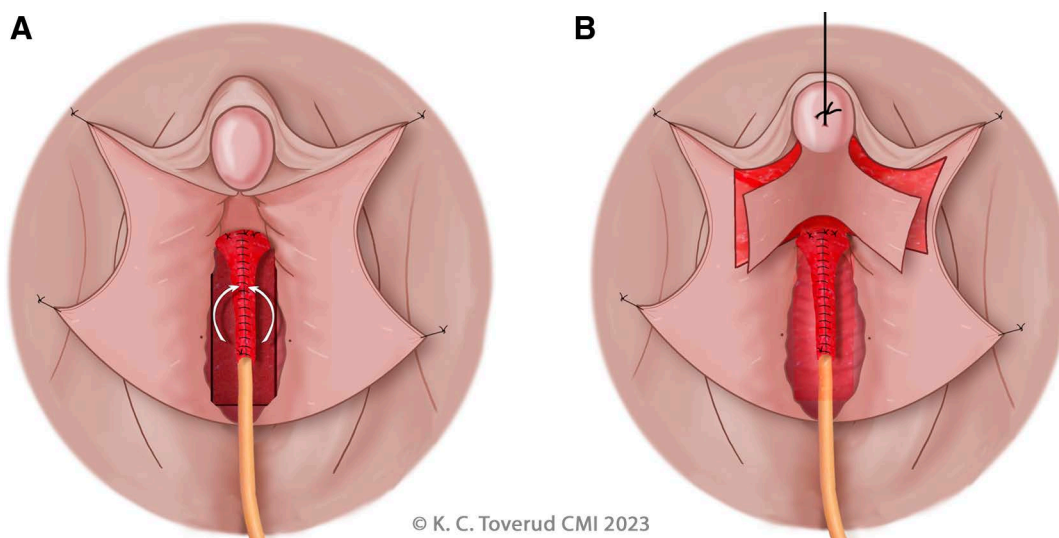
evaluate an already established method. The patient information is fully deidentified.<sup>24</sup>

## RESULTS

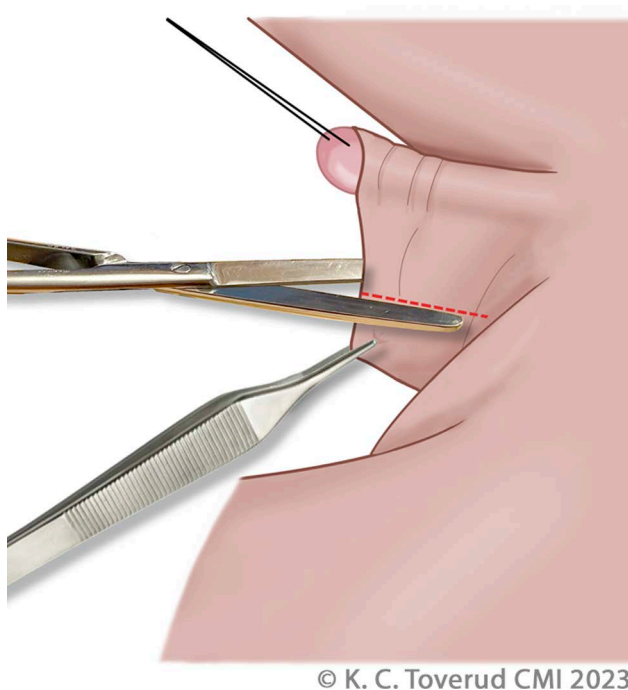
In this national center cohort, 84 patients underwent metoidioplasty from 2007 to 2020. The median age at the time of surgery was 27.5 (range 19–59) years. Before the procedure, the patients had used hormonal treatment for an average of 4.6 years, and 97.6% of the patients had undergone chest contouring surgery.

The metoidioplasty procedure lasted on average 4.3 hours (2 hours 30 minutes to 5 hours 42 minutes), and the median time before discharge was 9 (range 6–22) days. One patient had a complicated postoperative course, which was not related to the primary surgery, that





**Fig. 3.** A front perioperative view. A, The pedicled vaginal wall flap is sutured around a urine catheter. B, The inner leaf of the labia minora is loosened and lifted surgically. Printed with permission from © Kari C. Toverud.



**Fig. 4.** View from the patients' left side, The labia minora is divided and trimmed to make the outer skin of the neophallus. Printed with permission from © Kari C. Toverud.

prolonged the stay to 49 days. This patient was considered an outlier and was not included in the analysis of hospitalization length. A total of 71 (84.5%) patients completed the surgery as a planned 1-stage procedure. Six of the patients had the testis implant procedure at a later stage, and the remaining 7 patients were either waiting for surgery to insert the testis prosthesis or did not wish to have a testis implant at all. All patients used testosterone preoperatively. The average BMI was 23.8 (16.3–31.4) kg/m<sup>2</sup>.

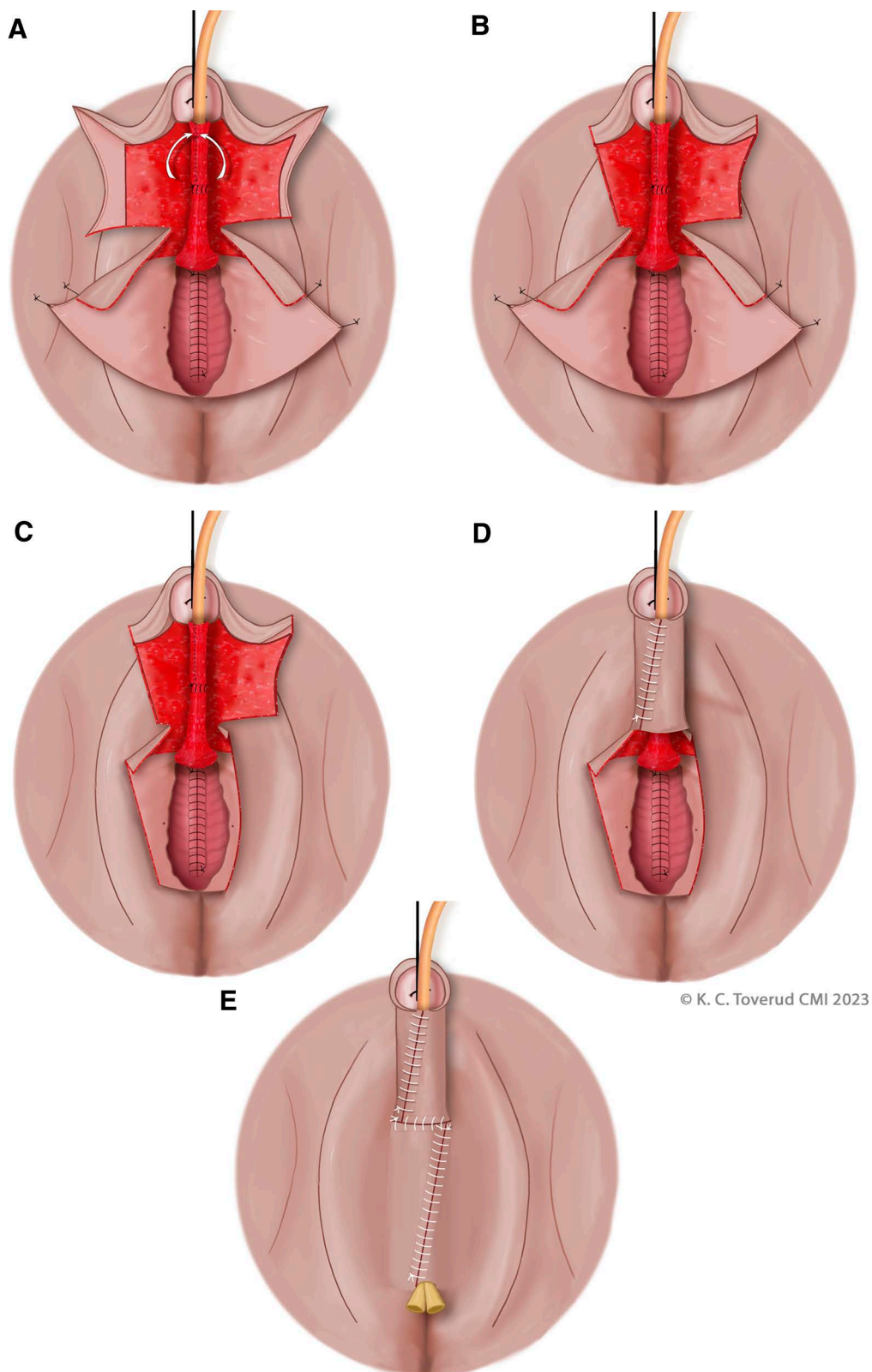
Thirty-six patients (42.9%) completed the surgery without any complications or need of revision procedures, and 5 of the patients (6%) stated that they wanted a subsequent phalloplasty procedure after the metoidioplasty. For a further description of patient and perioperative characteristics, see (Table 1).

#### Urologic Complications and Management

Forty-eight of the patients (57.1%) experienced some form of complication after the surgery, with an average of 1.7 complications (Tables 2, 3). Complications related to the urethroplasty were the most common, with strictures occurring in 19 (22.6%) patients and urethral fistulas occurring in 11 (13.1%) patients. Eleven patients had symptoms of urine retention that needed medical assessment. A cystoscopy procedure was performed in 38 of the patients (45.2%) as a part of the assessment of a voiding problem (Table 4). The cystoscopy procedure was performed under general anesthesia with a small 9- or 12-Charrier rigid cystoscope. The neourethra and the transition to the native urethra were examined. Apparent strictures were treated with a dilatation procedure in 24 (28.6%) patients, and an endoscopic urethrotomy was performed in 8 (9.5%) patients. The fistulas were treated either with a direct anastomosis, which was the case for 5 (6%) patients, or with a urethroplasty with either a free vaginal mucosa transplant or free buccal mucosa graft transplant in 3 (3.6%) patients. One patient was treated with a repositioning of the native urethra due to persistent voiding challenges.

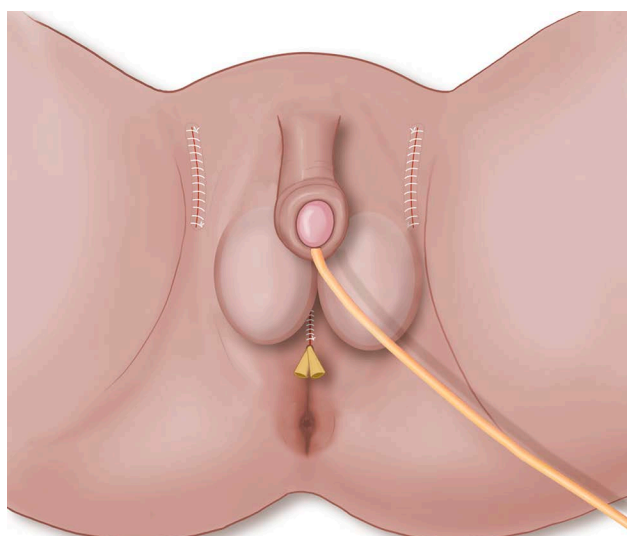
#### Secondary Procedures

Forty-one of the patients (48.8%) needed 1 or more revision procedures. The number of procedures ranged from 1 to 14, with an average of 2.4 procedures per patient (Tables 2, 5). Eight of the patients (9.5%) needed 6 or more revision procedures. After the management of strictures and fistulas, secondary testis implant correction



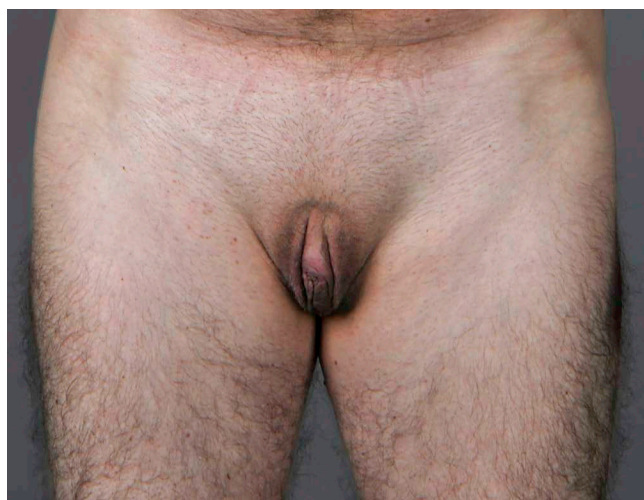
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**Fig. 5.** A step-by-step illustration of the anastomosis in the urethroplasty and making of the neophallus shaft. A-D, The inner leaf is then anastomosed to the tubularized flap from the vaginal wall. This tube is then first covered by surrounding tissue and then the outer skin of the neophallus is created by trimmed skin flaps from the labia minora that are wrapped and sutured around (B-E). Printed with permission from © Kari C. Toverud.



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**Fig. 6.** To place the testicular implants, a 3-cm incision is made laterally and cranially on the labia majora. The rest of the vaginal canal is not removed; the anterior wall surface is closed with running sutures, and a drain is placed. No vaginectomy is performed, so the remaining vaginal canal is left open. Here, it is illustrated with a drain in the opening. Printed with permission from © Kari C. Toverud.

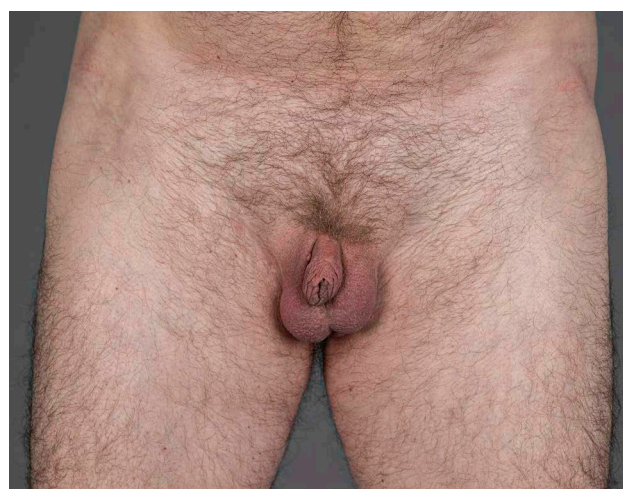


**Fig. 7.** A typical patient before surgery with adequate clitoris hypertrophy.

was the most frequent revision procedure performed in 38.1% (32) of patients. This included either a change or removal of the prosthesis, often with a positional correction. A cosmetic correction of the genital area was also common and was required in 20 of the patients (23.8%). This intervention included liposuction of the mons pubis, surgical correction of the neoscrotum, or cosmetic correction of the neopenis.

#### Risk Factors

When examining the data with univariable logic regression, we found that with increasing BMI, the risk



**Fig. 8.** The same patient a couple of years after surgery.

of complications and the risk of undergoing revision procedures also increased significantly ( $P = 0.045$  and  $0.019$ , respectively) (Table 6).

## DISCUSSION

This study presents the surgical results from a national center of 84 patients who underwent metoidioplasty. There were many cases of complications and revision procedures related to the urinary tract.

Completing the procedure as a 1-stage procedure without further corrections or the need for revision procedures occurred in 43 of the patients (51.2%) (Table 3). Other studies have reported higher single-stage procedure rates, ranging from 77.3% in the study by Perovic and Djordjevic et al<sup>25</sup> to 91.2% in the study by Djordjevic and Bizic.<sup>11</sup> When considering the planned delayed procedures from our study, 13 patients did not have the testicle prosthesis insertion as part of the primary surgery. In light of this, completion in a 1-stage procedure was 84.5% ( $n = 71$ ) (Table 1).

The level of complications related to the urinary tract in our sample was high, at 35.7%, when looking at the strictures and the urethral fistulas together. Djordjevic et al<sup>6</sup> from the Belgrade center reported a 12% level of urologic complications in a sample consisting of 938 FtM patients. A retrospective study by Hage and van Turnhout<sup>26</sup> reported that fistulas occurred in 37% of the 70 patients and that a urethral stricture occurred in 35%. Lumen et al<sup>27</sup> reported that of 74 transmen who had undergone metoidioplasty, 26 (35.1%) had complications related to the urethra that needed surgical management. When it comes to comparing the different techniques regarding urologic complications, systematic review and meta-analysis by Jolly et al from 2021 found that the Belgrade technique may have the lowest frequency of urethral strictures and fistulas.<sup>27,28</sup> The Belgrade technique, with the use of either buccal mucosa graft or labial skin graft for the urethroplasty, shows a lower occurrence of strictures and fistulas.<sup>6,11,28</sup> The results from our study are somewhere on the high



**Table 1. Patient Characteristics with Mean (SD) and Median with Ranges**

Variables	N = 84	Mean (SD)	Median (Range)
Age, y			
Referral to national center	84	22.6 (7.9)	20 (13–54)
Hormonal treatment	83	24.6 (7.1)	22 (16–56)
Breast surgery	72	26.4 (7.2)	24 (18–58)
Metoidioplasty surgery	84	29.0 (7.9)	27.5 (19–59)
BMI, kg/m <sup>2</sup>	82	23.8 (3.6)	23.3 (16.3–31.4)
Duration of hormonal treatment before surgery, y	83	4.6 (2.3)	4.3 (2–17)
Surgery duration, h	78	4.3 (0.7)	4.3 (2.5–5.7)
Hospitalization length, d	83	9.5	9 (6–22)
Urethral lengthening using anterior vaginal wall, n (%)	84 (100)		
Testis prosthesis inserted during primary surgery, n (%)	71 (84.5)		
Delayed testis prosthesis insertion, n (%)	6 (7.1)		
No testis prosthesis, n (%)	7 (8.3)		
Smoking status			
Smoking, n (%)	12 (14.3)		
Nonsmoker, n (%)	66 (78.6)		
Unknown, n (%)	6 (7.1)		
Mastectomy before metoidioplasty, n (%)	82 (97.6)		
Testosterone			
Commenced by national center, n (%)	73 (86.9)		
Self-medicated, n (%)	11 (13.1)		

**Table 2. Numbers and Frequencies of Complications**

Complications	N = 84
No. patients with complications, n (%)	48 (57.1)
Urologic complications, n (%)	
Stricture	19 (22.6)
Urethral fistula	11 (13.1)
Both stricture and fistula	1 (1.2)
Urinary retention	11 (13.1)
UTI (in need of antibiotic treatment)	8 (9.5)
Other complications, n (%)	
Bleeding that led to surgery	7 (8.3)
Wound infection/abscess	4 (4.8)
Wound rupture	4 (4.8)
Loss or dislocation of testis prosthesis	2 (2.4)
Necrosis	0

UTI, urinary tract infection.

**Table 3. Distributions of the Number of Both Procedures Related to Urologic Complications and Secondary Corrective Surgery after the Primary Surgery**

No. Procedures	Management Urologic Complications, n (%)	Secondary Corrective Surgery, n (%)
0	48 (57.1)	43 (51.2)
1	8 (9.5)	11 (13.1)
2	5 (6.0)	8 (9.5)
3	4 (4.8)	3 (3.6)
4	9 (10.7)	8 (9.5)
5	5 (6.0)	5 (6.0)
6	2 (2.4)	2 (2.4)
7	0	0
8	0	1 (1.2)
9–11	0	0
12	1 (1.2)	0
13	2 (2.4)	2 (2.4)
14	0	1 (1.2)

end on this scale, and we found that strictures occurred more frequently than fistulas. Our center has used the metoidioplasty technique as described by Hage with minor alterations. All our patients received urethral lengthening with only a partial removal of the vaginal lining with the closure of the wound surface on the anterior vaginal wall. The number of patients with fistulas in our sample is at 13.1% and strictures were at 22.6%. The anterior vaginal flap is well vascularized at its base, but at the distal end, it may be that the perfusion is poorer, and it acts more like a skin transplant. It is here, where the anastomosis to the inner labial leaf is made, that the most problems concerning fistulas and strictures arise.<sup>19</sup> With this technique, there is still a possibility to perform vaginal intercourse, but this may be challenging due to the small opening. In a systematic review of urethral outcomes after genital gender-affirming surgery by Ortengren et al,<sup>29</sup> they find an average of 21% of fistulas and 25% of strictures occurring in patients who have had a vaginectomy procedure simultaneously or before metoidioplasty. Al-Tamimi et al<sup>30</sup> found that a simultaneous or prior vaginectomy procedure has shown reduced risk of developing fistulas in a cohort of 294 transgender men from a single center in the Netherlands. Removing the epithelium lining and closing the vaginal canal may give more structural support surrounding the urethral lengthening, and one could theorize that this has a positive effect to reduce urethral fistulas.

When comparing the management of urologic complications, other studies such as Nikolavsky et al<sup>31</sup> and de Rooij et al<sup>32</sup> described a more targeted algorithm than what we have practiced in Norway. Nikolavsky et al<sup>31</sup> recommended only 2 dilatation procedures before a surgical intervention, whereas de Rooij et al<sup>32</sup> claimed that urethral dilatation should not be performed because this has been shown to be unsuccessful in the treatment of strictures.

**Table 4. Different Urologic Management Procedures with Numbers of Patients and the Percentages and Ranges of the Number of Procedures**

Revision Procedures	N = 84	No. Procedures	Range
Patients needing management of urologic complications or voiding challenges, n	36 (42.9)		
Invasive treatment of urethra stricture in total, n (%)	26 (31)		
Dilatation	24 (28.6)	57	(0–7)
Urethrotomy	9 (10.7)	12	(0–2)
Surgical treatment of urethra fistula, n (%)	12 (14.3)	28	(0–4)
Open urethroplasty, direct anastomosis	5 (6.0)	5	(0–1)
Open urethroplasty, transplant	3 (3.6)	5	(0–2)
Perineoplasty	1 (1.2)	1	(0–1)
Cystoscopy	38 (45.2)	115	(0–11)

**Table 5. Different Secondary Procedures Performed with the Numbers of Patients and the Percentages and Ranges for the Number of Procedures**

Type of Procedure	N = 84	No. Procedures	Range
Total number of patients, n (%)	41 (48.8)		
Secondary corrective testis implant procedure, n (%)	32 (38.1)	68	(0–12)
Delayed testis prosthesis insertion, n (%)	6 (7.1)	6	(0–1)
Cosmetic procedure of the genital area in total, n (%)	20 (23.8)	29	(0–3)
Testis/scrotum	7 (8.3)	10	(0–3)
Neopenis	1 (1.2)	1	(0–1)
Liposuction of mons pubis	16 (19.1)	16	(0–1)
Other	2 (2.4)	2	(0–1)

**Table 6. Univariable Analyses of Different Risk Factors and the Risk of Complications, Urologic Revision, and Secondary Procedures**

	BMI, kg/m <sup>2</sup>	Age, y	Smoking	Duration of Surgery, min
OR complication (CI for OR)	1.15 (1.00–1.31)	1.04 (0.98–1.11)	1.06 (0.31–3.65)	1.00 (0.99–1.01)
P value	<b>0.045</b>	0.190	0.928	0.826
OR urologic revision (CI for OR)	1.10 (0.97–1.24)	1.07 (1.02–1.14)	1.40 (0.41–4.77)	1.00 (0.99–1.01)
P value	0.146	<b>0.042</b>	0.590	0.400
OR secondary procedures (CI for OR)	1.17 (1.03–1.34)	1.04 (0.98–1.11)	1.57 (0.45–5.39)	1.01 (1.00–1.02)
P value	<b>0.019</b>	0.158	0.478	0.332

P values in bold show significant values.

CI, confidence interval; OR, odds ratio.

One could claim that we have taken a somewhat liberal attitude to performing a diagnostic cystoscopy and a dilatation procedure instead of a surgical intervention when the patient experienced a voiding problem. We found that a small subset of patients needed more than 6 procedures with cystoscopy and dilatations, and in hindsight, these patients may have benefited from a different surgical approach. There is, however, a knowledge gap concerning the normal voiding patterns after this procedure. De Rooij et al<sup>32</sup> proposed using a uroflow Q<sub>max</sub> cutoff at less than 15 mL/s when deciding to undergo surgical intervention or not. It is possible that a relatively low uroflowmetry should have been considered normal and that we should have delayed both endoscopic and surgical interventions. We have not routinely taught the patients how to perform urethral blocking postoperatively if the urine flow is reduced. It is possible that the implementation of self-catheterization in selected patients and a shift toward earlier surgical intervention could prevent the relatively high number of procedures needed to treat strictures.

The number of patients needing secondary procedures was relatively high at 41 (48.8%) patients. The proportion of patients undergoing a liposuction procedure after metoidioplasty in this sample was almost 20%. We found an average BMI of 23.8 kg/m<sup>2</sup>, which is in the normal weight category. When performing univariable logistic regression, we found that an increasing BMI had a significant P value for the risk of complications and secondary procedures. Some will argue that the BMI cutoff of 30 kg/m<sup>2</sup> is a strict limit. On the other hand, one could claim that BMI is a poor measurement of the distribution of body fat, and the individual assessment of the fat distribution in the genital area is probably a better way to select the patients. Even though we found an increased risk related to increased BMI, a different study design to examine the isolated effect of weight on complication risks is necessary. Complications and secondary corrective procedures related to the testicular prosthesis occurred in 32 (38.1%) patients. Hage and van Turnhout<sup>26</sup> also reported frequent events related to the testicular prosthesis, at around 50% of the 70 patients in that study. Pigot et



al<sup>33</sup> retrospectively looked into their scrotoplasty procedures from 1992 to 2018 and found a total explantation percentage of 20.8. Over the years, they have shifted from a concomitant insertion to a delayed staged prosthesis insertion.<sup>33</sup>

There is no gold standard in regard to creating a neophallus in the FtM transgender patient. Over the course of time, different approaches have been developed.<sup>34</sup> In the light of the findings of this study, future patients should be interviewed more thoroughly to disclose the actual desire to void standing up and the need for testicular prosthesis to develop a more individualized surgical plan. A technique without urethral lengthening is an option for those without a strong desire to void standing up.<sup>10</sup> The vast number of different techniques might be an expression of the imperfection of the technique, but one could also claim that it reflects the multitude of desires of the patients. Comparing results can therefore be challenging.

The strength of this study is the relatively large group of patients with none lost to follow-up. There are apparent limitations due to the retrospective design. In addition, we only have data available concerning the postoperative follow-up from our national center. The design would have benefited from the implementation of a validated patient-reported outcome measure with the evaluation from the patient concerning quality of life, voiding patterns, and satisfaction related to the surgical result. As found by Oles et al<sup>17</sup> and Barone et al,<sup>35</sup> there are only a few validated patient-reported outcome measures for this patient group that are used more than 1 or 2 times, and Kamran et al<sup>36</sup> emphasized the importance of an evidence-based implementation of PROMs. We are a low-volume center, where the genital-affirming treatment for transgender men is not that common. Future studies from our center aim to include more public involvement than this retrospective study.

## CONCLUSIONS

Metoidioplasty is a surgical procedure with relatively high levels of urologic complications. This study provides information and evidence that can be used in decision-making both for the patient and the surgeon. However, there is an urgent need for future research with a focus on quality of life and long-term follow-up.

## DECLARATION OF HELSINKI

*The study conformed to the Declaration of Helsinki.*

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## DISCLOSURE

*The authors have no financial interest to declare in relation to the content of this article.*

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