# Management of 3rd and 4th Degree Perineal Tears after Vaginal Birth. German Guideline of the German Society of Gynecology and Obstetrics (AWMF Registry No. 015/079, October 2014)

## Management von Dammrissen III. und IV. Grades nach vaginaler Geburt (S1-Leitlinie der Deutschen Gesellschaft für Gynäkologie und Geburtshilfe, AWMF-Registernumner 015/079, Oktober 2014)

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### Guideline documents
The editorially complete, long version of these guidelines as well as a summary of the conflicts of interest of all the authors can be found on the homepage of AWMF: http://www.awmf.org/leitlinien/detail/II/015-079.html.

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## Abbreviations (Table 4)

**Table 4** Abbreviations used.

| | |
|---|---|
| PT | Perineal Tear |
| OR | Odds Ratio |

# II Use of the Guidelines

## Problem and aims

The Austrian Urogynecology Working Group (Österreichische Arbeitsgemeinschaft für Urogynäkologie und Rekonstruktive Beckenbodenchirurgie [AUB]) formulated guidelines for the management of perineal tears (PT) of the 3rd and 4th degree after vaginal birth for the first time in 2007. The various methods of surgical management had previously not been summarised systematically although use of inappropriate procedures could have serious consequences for the patients.

By means of, in particular, recommendations on the diagnostics, therapy and follow-up in cases of higher degree perineal tears in the course of vaginal births these guidelines are intended to improve the management of such situations and to reduce their short- and long-term consequences. The guidelines are intended for midwives, physicians involved in obstetrics and also those confronted with the management of higher degree perineal tears. An update of the Austrian guidelines has now been undertaken in cooperation with the German Society for Gynaecology and Obstetrics (Deutsche Gesellschaft für Gynäkologie und Geburtshilfe DGGG) and, respectively the Consortium for Urogynaecology and Plastic Pelvic Floor Reconstruction (Arbeitsgemeinschaft für Urogynäkologie und Plastische Beckenbodenrekonstruktion [AGUB]).

## Addressees

These guidelines are intended for the following target groups:

- practicing obstetricians/gynecologists
- obstetricians/gynecologists in hospitals
- midwives
- coloproctologists

## Background

For the first time in 2007 the AUB Austria commissioned representatives of AUB Austria as well as coloproctologist colleagues of the ÖGC to prepare evidence- and consensus-based guidelines. These guidelines were adopted by the Austrian Society for Gynaecology and Obstetrics (Österreichische Gesellschaft für Gynäkologie und Geburtshilfe [OEGGG]). The first update was published in 2011, again evidence- and consensus-based, in cooperation with members of AUB Austria, ÖGC and the Austrian Midwives Committee (Österreichisches Hebammengremium). This update was again adopted by OEGGG. Furthermore, an English translation of the guidelines was published after the usual peer review process in the International Urogynecology Journal (Int Urogynecol J 2013; 24: 553–558).

The recently planned updated guidelines 2014 were again initiated by AUB Austria in cooperation with members of the AGUB Germany with the aim to produce common German language guidelines to be positioned as AWMF guidelines.

For literature searches and the preparation of suggestions for correction of the individual chapters the following colleagues with expert relevant knowledge were assigned as follows by the guideline coordinator (**Table 5**):

**Table 5** Chapter topic.

| | |
|---|---|
| Epidemiology | Tammaa, van der Kleyn |
| Classification | Umek, Aigmüller |
| Diagnostics | Elenskaia, Kölle |
| Postpartum management | Helmer, Pfeifer, Kropshofer, Beilecke, Reisenauer |
| Measures for postpartum inpatient period | Aigmüller, Frudinger |
| Follow-up | Frudinger, Tamussino |
| Recommendations for subsequent births | Huemer, Helmer, Elenskaia |

On the basis of the literature searches for the present Austrian guidelines, publications on the management of higher degree perineal tears in English and German that appeared between November 2011 and January 2014 were considered. Searches were made in the databases PubMed and MEDLINE. The secondary literature was also taken into account.

The subject-related coordination was realised each time by means of a round mailing process. Coordination and formulation of the final version were carried out by Dr. Thomas Aigmüller as agent and guideline delegate of AUB and Prof. Werner Bader as agent of AGUB and guideline coordinator.

All authors have declared any conflicts of interest and these are summarised in tabular form in the Appendix. The conflict of interest declarations were obtained with the help of a standard AWMF form. The original completed forms have been deposited with the guideline coordinator. Self-assessments of the details were performed. Members of the guideline group who had received fees for lecturing activities (item 2 of the declaration) or financial support for research projects (item 3 of the declaration) received this support solely from companies that did not produce materials for the production of suture materials. The same was true for advisor or expert consultant activities (item 1 of the declaration) and for the possession of business interests, shares, and stocks with participation in companies in the health-care business (item 5 of the declaration). No participant was excluded from a vote for such a reason.

## Period of validity

The validity of these guidelines was confirmed by the board of the DGGG and the DGGG guideline commission in October 2014. These guidelines have a validity period from 02.10.2014 to 02.10.2017. This period has been estimated on the basis of content connections. If urgently needed, the guidelines may be updated at an earlier point in time; also if they are still in compliance with the current states of knowledge, the validity period may be extended.

## 1 Epidemiology

### Incidence

According to the Austrian Birth Registry 2011, in the course of vaginal deliveries the frequency of 3rd degree perineal tears was 1.5% and that of 4th degree tears 0.1% whereby the incidence of such tears in first-time mothers amounted to 1.8% and in multiparous women to 0.9% [1]. In Germany in 2012 the incidences were 0.95% (3rd degree tears) and 0.09% (4th degree tears), data on the incidences for first-time mothers and multiparous women are not available [2].

In contrast, the incidence of lesions of the external or internal anal sphincter muscles was stated to be 11% in a systematic review [3].

In the past few years in general, an increasing incidence of higher grade perineal tears has been reported which is mainly due to an improved rate of detection [4].

Consecutive complaints include flatus incontinence, pathological stool urgency and, although less common, also incontinence for liquid or solid faeces. The frequency of these complaints increases continuously in the years following delivery [5–7].

### Risk factors

In descending order of importance, in parentheses the odds ratio (OR) according to refs. [8–16, 71]:

- birth weight > 4 kg (OR: 5.0; increasing with increasing birth weight of the baby)
- forceps (OR: 2.6–3.7)
- median episiotomy (OR: 2.4–2.9)
- nulliparous (OR: 2.4)
- shoulder dystocia (OR: 2.0)
- delivery in lithotomy or deep squatting position (OR: 2.0)

- Kristeller's manoeuvre/fundal pressure (OR: 1.8)
- vacuum extraction (OR: 1.7–2.6)
- prolonged second stage of labor:
  - nulliparous without epidural anaesthesia, second stage of labor > 2 h (OR 1.78)
  - nulliparous with epidural anaesthesia, second stage of labor > 3 h (OR 1.80)
  - multiparous without epidural anaesthesia, second stage of labor > 1 h (OR 3.2)
  - multiparous with epidural anaesthesia, second stage of labor > 2 h (OR 3.85)
- family risk – sister or mother with 3rd or 4th degree perineal tears (OR 1.7 or, respectively, 1.9)
- occipitoposterior position (OR: 1.7)
- male baby (OR 1.3)

### Risk reducing factors

- lateral episiotomy in vacuum extraction (OR 0.6) [17, 18]
- women with nicotine abuse have a lower risk for a higher degree perineal tear (OR 0.72 at the first birth) [20]

### The following obstetric measures are neither prophylactic nor do they increase the risk for higher degree perineal tears [8, 11, 21–25]:

- antenatal or subpartal perineal massage
- water birth
- augmentation of contractions
- time and type of pushing
- Ritgen's manoeuvre
- EPI-NO®

### The following obstetric factors/measures cannot be conclusively evaluated on account of inadequate or contradictory data:

- peridural anaesthesia [11, 15, 17, 26, 73]
- "Hands on" on the perineum [74, 75]
- perineal subpartal moist compression [23]
- maternal obesity [19, 17, 72]
- induction of labour [3, 17, 76]

The evidence for episiotomy as a prophylaxis against higher degree perineal tears is divergent [8, 26, 27]. Median episiotomy is consistently associated with an increased risk for higher degree perineal tears. Mediolateral episiotomy should be used restrictively [28, 29].

## 2 Classification

A higher degree perineal tear is present when at least the external anal sphincter muscle is injured [30]:

- 3rd degree perineal tear: anal sphincter injured, anorectal epithelium intact
- 4th degree perineal tear: sphincter injured, anorectal epithelium torn

The following subdivision of 3rd degree perineal tears can be useful [31]:

- IIIa … less than 50% of the thickness of the external anal sphincter muscle torn
- IIIb … more than 50% of the thickness of the external anal sphincter muscle torn
- IIIc … external and internal anal sphincter muscles torn

Since the internal anal sphincter plays an important part in the continence mechanism attempts should be made to identify it in cases of extensive injuries [32, 33].

A special form of higher degree perineal tear is a laceration of the anorectal epithelium with intact external anal sphincter muscle ("buttonhole tear"). This is very rare but, when not treated, carries the risk of a rectovaginal fistula and can be diagnosed by anal palpation in the postpartum period [34–36]. In cases with laceration of the anal skin and intact external anal sphincter muscle, there is an increased probability of injury to the internal anal sphincter. Conclusive clarification of this type of defect is only possible by surgery or endosonography [77, 78].

## 3 Diagnostics

After vaginal birth a 3rd or 4th degree perineal tear must first be excluded by careful inspection and/or palpation by the obstetrician and/or midwife. Not only vaginal but also anorectal palpation for the assessment of birth injuries is extremely important. In cases of at least a 2nd degree perineal tear both vaginal and rectal palpations are recommended to assess the extent of the injury.

If a 3rd or 4th degree perineal tear cannot be excluded, an experienced physician with special knowledge (preferably a specialist for gynaecology and obstetrics or a consultant with coloproctological expertise) should be called in to check the diagnosis, and, if necessary, to make a provisional, orienting classification (3rd or 4th degree) and initiate the further steps.

## 4 Postpartum management

### Preparation

Management of 3rd or 4th degree perineal tears requires general or regional anaesthesia in order to achieve a maximal sphincter relaxation and a sufficient pain relief. The procedure is done under aseptic conditions in an operating room or equivalent facility with assistants, appropriate instruments and equipment. The patient is placed in the lithotomy position. The operating team should include a specialist with adequate experience [37]. The number of previous operations, however, does not seem to be relevant with regard to the avoidance of anal incontinence [38].

In exceptional cases the operation may be delayed for up to 12 hours post-partum [39].

With the exception of emergency situations an adequate and documented preoperative informed consent is essential.

A preoperative prophylactic antibiotic therapy (e.g., with 2nd generation cephalosporins) should be administered [40].

### Surgical strategy

I. Identification of additional birth injuries and exact classification of the perineal tear by means of speculum inspection and digital rectal examination.
II. If necessary first management of cervical and high vaginal tears (from the top down), and then management of the perineal tear.
III. For 4th degree tears: repair anorectal epithelium with atraumatic, 3–0, end-to-end sutures [41, 42].
IV. If the edges of the torn internal anal sphincter can be identified approximate the edges with atraumatic interrupted mattress sutures, preferably 3–0 [42, 43].
V. Identification of the edges of the external anal sphincter muscle and gripping them with Allis clamps.
VI. Suture of the external anal sphincter muscle with atraumatic U sutures – preferably with thread size 2–0. There is a choice between two methods: the overlapping technique and the end-to-end technique [46–48]. For an incomplete tear of

the muscle, the end-to-end technique should be used [38, 44]. Use of the overlapping technique reduces the symptoms of stool urgency and stool incontinence after 1 year whereas, after 3 years, no differences between the two techniques can be found [45]. There are hints that the rate of flatulence is reduced with the end-to-end technique [44]. A conclusive recommendation for one method or the other cannot be given. The surgeon should choose that method with which he/she has more experience.

VII. Layer-by-layer management of the perineum.

VIII. Documentation of birth injuries and surgical report.

For items III–VI atraumatic, slowly resorbable suture material should be used. The choice between braided and monofilament material is left to the surgeon's individual preference [43, 46–48]. A prophylactic bowel stoma is not indicated [49, 50] (**Figs. 1** to **3**).

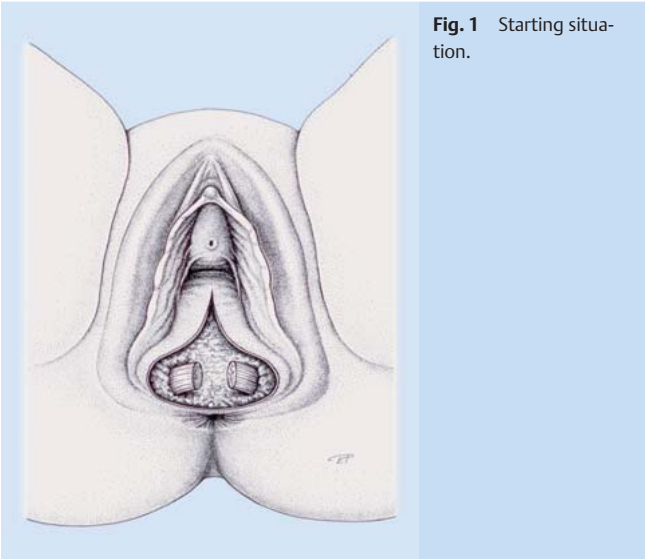

**Fig. 1** Starting situation.

## 5 Puerperium

### Antibiotics

There is no evidence for the postoperative prophylactic administration of antibiotics. Because of the contaminated wound situation as well as the possibly severe consequences of a wound infection (through to a necessary bowel stoma), the authors of the guidelines consensually recommend the prophylactic administration of antibiotics [31].

### Laxatives

The prophylactic administration of lactulose reduces the pain on first bowel movements after management of a higher degree perineal tear. Postoperative pain, rate of wound infections, continence and dyspareunia are not affected by the administration of laxatives. Furthermore, administration of laxatives for a few days is recommended in order to reduce the mechanical stress on the sutures [51].

In cases with uncomplicated healing processes, rectal examinations should be omitted [43].

The rate of wound complications after 3rd and 4th degree perineal tears (wound infection, dehiscence, reoperation, readmission to hospital) amounts to 7.3%, whereby smoking and a higher BMI represent independent risk factors [52].

The patients should be informed about the extent of birth injuries and possible late sequelae. Information about follow-up, behavioural actions and contact details in case of problems should be given.

## 6 Follow-up

A gynaecological follow-up examination should be scheduled at about 3 months post-partum. This follow-up examination should at least include the following items:

- history of symptoms of anal incontinence [46, 48, 53–56]
  - flatus incontinence (up to 50%)
  - defaecatory urgency (26%)
  - incontinence for liquid stool (8%)
  - incontinence for solid stool (4%)
- inspection of the perineum

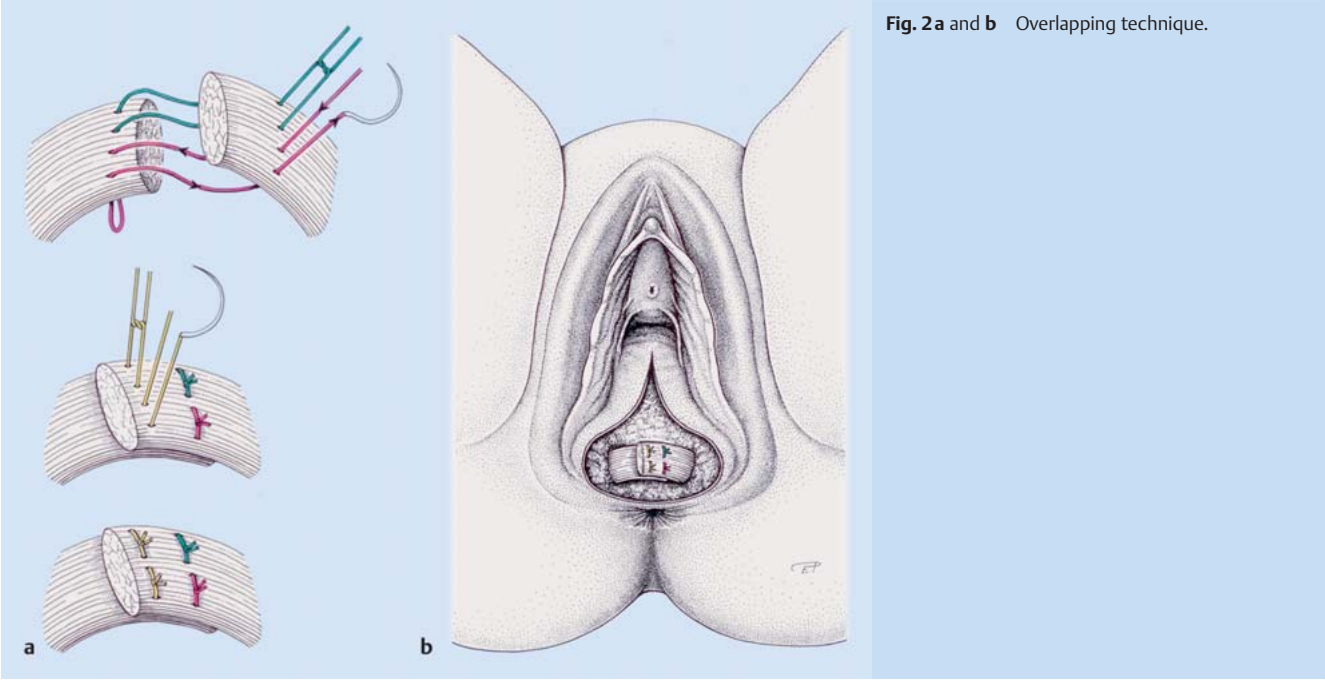


**Fig. 2 a** and **b** Overlapping technique.

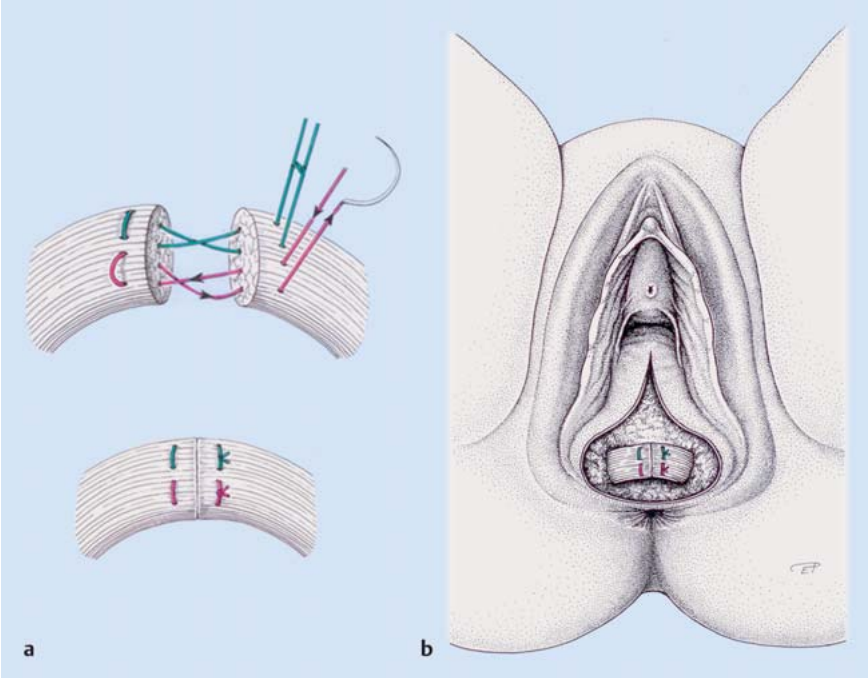


**Fig. 3 a** and **b** End-to-end technique.

- vaginal and rectal palpation
- Referral to physiotherapy for the purpose of strengthening the pelvic floor musculature. Early biofeedback-supported physiotherapy has no advantage over classical pelvic floor training [57]. For anal incontinence, the so-called triple-target therapy (combination of amplitude-modulated medium frequency stimulation and electromyographic biofeedback) is superior to a standard stimulation therapy with electromyographic biofeedback [58].
- Information about a possibly long latency onset/worsening of the symptoms of anal incontinence [59, 60].
- discussion regarding subsequent pregnancies and births
- In cases of anal incontinence, referral of the patient to a centre with the appropriate expertise (anal endosonography, conservative as well as surgical therapeutic options) is recommended.

## 7 Recommendations for subsequent deliveries

The available data do not allow any recommendations as to the birth mode for future pregnancies. The patient should be informed that in a subsequent vaginal birth the risk for a renewed injury to the anal sphincter muscles can be, depending on the data source, non-existent [38, 44, 45] or up to 7-fold increased [61–65]; however, more than 95% of the women do not suffer from a further higher degree perineal tear [63, 66]. In addition, the risk increases with increasing birth weight of the baby [61–66]. Similarly it has been shown for the vaginal birth mode after 3rd/4th degree perineal tears that the short-term risk for persisting anal incontinence is increased [67, 68]. In long-term studies over a period of 5 or more years this difference is no longer apparent [69, 70].

An elective Caesarean section should be offered to all women who have previously suffered from 3rd/4th degree perineal tears, and especially to those patients with

- persisting fecal incontinence,
- reduced sphincter function or
- suspected fetal macrosomia.

Also for vaginal births in patients with prior 3rd/4th degree perineal tears, an episiotomy should be used restrictively [66].


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