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ORIGINAL ARTICLE

An estimation of the frequency of surgery for posthysterectomy vault prolapse

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Abstract
Introduction and hypothesis We tried to estimate the frequency of surgery for posthysterectomy vault prolapse.
Methods We contacted all 86 departments of gynecology in Austria and asked them about total number of hysterectomies and total number of operations for vault prolapse. We then calculated a percentage of patients undergoing surgery for posthysterectomy vault prolapse.
Results Sixty-five of 86 public hospitals replied (response rate 76%) and reported a total of 7,645 hysterectomies and 577 operations for vault prolapse for the year 2005, giving a percentage of 7.16 for surgery for posthysterectomy vault prolapse. On the assumption that vault prolapse takes on the average 10 years to develop and that the number of hysterectomies decreased by 10% over 10 years, we calculated a modified frequency of 6.52%.
Conclusions We were able to calculate an estimation of the frequency for posthysterectomy vault prolapse requiring surgical repair between 6% and 8%.

Keywords Hysterectomy · Pelvic floor surgery · Prolapse · Vault prolapse

Introduction

Prolapse of the vaginal vault is a well-known complication after hysterectomy. It can occur after all types of hysterectomy—vaginal, abdominal, or laparoscopic—and may be associated with descent of the anterior or posterior compartment. The actual frequency of this complication is difficult to determine and may depend on a variety of factors, for example, the indication for hysterectomy, tissue quality, surgical technique, or risk factors such as continued heavy lifting by the patient [1–5].

In literature, some data is available on the incidence of vault prolapse, with diverging rates of incidence, ranging from 0.2% to 58% [1, 3, 6–9]. All these studies were performed single-center based to detect anatomical recurrence or to calculate the rate of reoperations for posthysterectomy vault prolapse. We wanted to calculate the frequency of surgery for posthysterectomy vault prolapse using nationwide data to avoid the bias regarding patients changing to another hospital in the case of a complication like vault prolapse after hysterectomy.

In order to be able to calculate an estimation of the frequency of vault prolapse, we made use of the fact that Austria is a small country with a population of eight million and a homogenous and inclusive pubic health care system. A minority of the population carries private health insurance and almost always in addition to compulsory public health insurance [10]. By determining the total number of hysterectomies in Austria in 1 year and the total number of operations for vault prolapse in the same year, we were able to calculate an estimation of the frequency of surgery for posthysterectomy vault prolapse.

Materials and methods

We contacted all 86 departments of gynecology at public hospitals in Austria by email up to three times and asked them to provide the following data for the year 2005: total

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number of hysterectomies and total number of operations for vault prolapse (excluding prophylactic procedures). In addition, we asked for the number of vaginal abdominal, radical, and laparoscopically assisted hysterectomies and the types of procedure used in vault prolapse. We were able to obtain the percentages for vaginal, abdominal, and laparoscopically assisted vaginal hysterectomy from every department, but we were not able to obtain the indications, e.g., prolapse.

The Austrian health care system allows making the following assumptions:

1. All women requiring surgical repair of posthysterectomy vault prolapse have access to medical care and are able to obtain the operation.
2. The number of patients coming to Austria is equal to the number going abroad for surgical repair of vault prolapse due to an excellent medical health care system in Austria [11].
3. There is only a negligible number of operations for vault prolapse performed in private hospitals. Less than 10% of the Austrian residents have private insurance [12], and most of them get medical treatment in public hospitals, which means that the majority of these patients is covered by the study.

We then divided the total number of operations for vault prolapse by the total number of hysterectomies to calculate a percentage of patients undergoing surgery for posthysterectomy vault prolapse. Since surgery for vault prolapse is subsequent to an operation (hysterectomy) in the past, we calculated a second frequency by making the following assumptions: (1) vault prolapse takes about 10 years to develop [13], and (2) the total number of hysterectomies in Austria was 10% higher 10 years ago [12]. The decrease of the number of hysterectomies over the years was noted by data obtained from selected hospitals for 1990–2005.

Results

Sixty-five of 86 public hospitals replied (response rate 76%, including all tertiary health care centers and university departments of gynecology) and reported a total of 7,645 hysterectomies and 577 operations for vault prolapse for the year 2005 (Table 1).

The majority of hysterectomies were done vaginally (54.2%), followed by the abdominal route (33.2%), and by laparoscopically assisted vaginal hysterectomies (8.2%). In over half of the patients, the procedure of choice for vault prolapse was a vaginal sacrospinous fixation (51.8%), followed by the posterior IVS™ procedure (21.3%), and the abdominal sacropexy (10.6%). Prolift™ and Apogee™ operations were introduced in Austria at the end of the year 2005 (Table 2).

Table 1 Departments contacted and response data

Departments of Obstetrics and Gynecology in Austria	86	
Departments contacted	86	
Departments providing information	65	75.6%
Hysterectomies[a]	7,645	
Hysterectomies per department (mean, range)	123.3	(28–378)
Surgeries for vault prolapse[a]	548	
Surgeries for vault prolapse per department (mean, range)	8.8	(0–42)

[a] Total number of procedures reported for the year 2005 by 65 departments of Obstetrics and Gynecology

For the calculation of the frequency of surgery for posthysterectomy vault prolapse, we divided the number of surgeries for vault prolapse by the number of hysterectomies, giving a percentage of 7.16.

On the assumption that vault prolapse takes on the average 10 years to develop and that the number of hysterectomies decreased by 10% over 10 years, we calculated a modified frequency of 6.52%.

Discussion

By comparing the number of operations for vault prolapse with the total number of hysterectomies done in Austria in one particular year (2005), we were able to calculate a frequency for posthysterectomy vault prolapse requiring surgical repair between 6% and 8%. However, one has to consider that the total number of vault prolapse is higher. Some patients develop postoperative descent but remain

Table 2 Types of procedures

	Number	%
Hysterectomies	7645	100.0
Vaginal	4128	54.0
Abdominal	2526	33.0
LAVH	616	8.1
Radical abdominal (Wertheim)	366	4.8
Radical vaginal (Schauta)	9	0.1
Surgeries for vault prolapse	548	100.0
Vaginal sacrospinous fixation	284	51.8
Abdominal sacropexy open	39	7.1
Abdominal sacropexy laparoscopy	19	3.5
Prolift™	42	7.7
Posterior IVS™	117	21.3
Other	47	8.6

Total numbers from 65 departments of Obstetrics and Gynecology for the year 2005

asymptomatic and therefore do not seek surgical repair, and some patients might be symptomatic but for some reason are unwilling or unable to undergo surgery. In a recent follow-up study after vaginal sacrospinous fixation, we found that 30% of patients develop anatomical recurrence, but half of them remain asymptomatic [13]. Our calculations are in line with the estimates by other authors [1, 3, 6–9].

Our study has several limitations. Since not all departments keep detailed statistics, we only requested the total number of and the type of procedure for hysterectomies and operations for vault prolapse. We did not ask for the indications for hysterectomy (prolapse or benign conditions) or for the pelvic organ prolapse quantification classification before surgery for vault prolapse since we did not expect most departments to be able to provide these statistics reliably. Additionally, since we only asked for the total numbers in one particular year, we were unable to correlate indication and type of hysterectomy with eventual surgery for vault prolapse. This would have required the more complicated design of a cohort study, and it is highly unlikely that we would have been able to obtain the necessary data.

Since two thirds of all departments responded, we can assume that the total number of hysterectomies in public hospitals in Austria was in the order of 10,000. The question remains how many hysterectomies—and surgeries for vault prolapse—were performed in private hospitals during the same period. However, Austria only has a very small number of private hospitals providing surgical services, located mainly in the provincial capitals. It is very unlikely that the figures from these hospitals would have changed the overall calculations.

A further limitation of our study is the fact that we focused on surgeries for posthysterectomy vault prolapse and not on symptomatic or asymptomatic anatomical failure.

It is generally known that about half of patients with anatomical prolapse do not have any symptoms of descent or lower urinary tract function, and this is true for primary and recurrent uterine or vaginal prolapse [14]. Our calculated rate for posthysterectomy vault prolapse does not indicate the rate of anatomical recurrence but shows the rate of symptomatic vault prolapse with bother and reduced quality of life, as these are the conditions precedent to surgery.

From epidemiologic studies, we know that a great number of women have anatomical prolapse of any compartment, up to 65% in women between 60 and 70 years of age present with pelvic organ prolapse stage 2 [15–17]. We believe that also in patients after hysterectomy, anatomic signs for vault prolapse are common, and our calculated rate of operations for vault prolapse indicates an adequate rate of indication for surgery: patients with complaints and bothered by vault prolapse.

We do not think that the number of hysterectomies per department (ten per month is not low for an Austrian department of Obstetrics and Gynecology) impacts on the frequency of posthysterectomy vault prolapse. The reason is that the technique of vaginal and abdominal hysterectomy is fairly standardized in Austria.

The strength of our study is that we were able to make use of the homogenous health care system in Austria, allowing us to obtain comprehensive data and to make meaningful calculations. Since we kept our request simple, it was possible to achieve an estimation of frequency of surgery for posthysterectomy vault prolapse on nationwide data. The high response rate of 76% of all public hospitals in one country is encouraging.

In conclusion, we were able to calculate that after hysterectomy, 6% to 8% of patients develop vaginal vault prolapse requiring surgery irrespective of the indication for hysterectomy. We assume that the percentages we calculated are relevant and can be used in the counseling of patients undergoing hysterectomy.

Conflicts of interest None.

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References

1. Daellenbach P, Kaelin-Gambirasio I, Dubuisson J, Boulvain M (2007) Risk factors for pelvic organ prolapse repair after hysterectomy. Obstet Gynecol 110:625–632
2. Olsen AL, Smith VJ, Bergstrom JO, Colling JC, Clark AL (1997) Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. Obstet Gynecol 89:501–506
3. Whiteside J, Weber A, Meyn L, Walters MD (2004) Risk factors for prolapse recurrence after vaginal repair. Am J Obstet Gynecol 191:1533–1538
4. Dietz HP (2008) The aetiology of prolapse. Int Urogynecol J 19:1323–1329
5. Diez-Itza I, Aizpitarte I, Becerro A (2007) Risk factors for the recurrence of pelvic organ prolapse after vaginal surgery: a review at 5 years after surgery. Int Urogynecol J 18(11):1317–1324
6. Kaser O, Ikg FA, Hirsch HA (1985) Atlas of gynecologic surgery, 2nd edn. Thieme-Stratton, New York, pp 6.1–6.9
7. Cruikshank SH (2009) Operations for support of the vaginal vault. The Global Library of Women's Medicine http://www.glowm.com/?p=glowm.cml/section_view&articleid=59
8. Daellenbach P, Kaelin-Gambirasio I, Jacob S, Dubuisson JB, Boulvain M (2008) Incidence rate and risk factors for vaginal vault prolapse repair after hysterectomy. Int Urogynecol J 19 (12):1623–1629
9. Marchioni M, Bracco GL, Checcucci V, Carabaneanu A, Coccia EM, Mecacci F, Scarselli G (1999) True incidence of vaginal vault prolapse. Thirteen years of experience. J Reprod Med 44(8):679–684

10. Ebeert DV (2007) Jahresbericht 2007. Versicherungsverband Oesterreich, Wien (www.vvo.at), p. 26
11. World Health Organisation (WHO) (2000) The world health report 2000
12. Statistik Austria (2006) Jahresbericht 2006; Current expenditure on health by provider industry and source of funding in Austria, 2006 (in Mio. Euro). http://www.statistik.at/web_de/statistiken/gesundheit/gesundheitsausgaben/index.html
13. Aigmueller Th, Riss P, Dungl AH, Bauer H (2008) Long-term follow-up after vaginal sacrospinous fixation: patient satisfaction, anatomical results and quality of life. Int Urogynecol J 19:965–969
14. Riss P, Ralph G, Anderl P (1990) Surgery of prolapse and incontinence in Austria—current status and prospects. Geburtshilfe Frauenheilkd 50(4):299–303
15. Jelovsek JE, Maher C, Barber MD (2007) Pelvic organ prolapse. Lancet 369(9566):1027–1038
16. Nygaard I, Bradley C, Brandt D (2004) Pelvic organ prolapse in older women: prevalence and risk factors. Obstet Gynecol 104:489–497
17. Samuellson EC, Arne Victor FT, Tibblin G, Svardsudd KF (1999) Signs of prolapse in a Swedish population of women 20 to 59 years of age and possible related factors. Am J Obstet Gynecol 189:372–377