Pelvic organ prolapse is highly prevalent in women with spina bifida

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Abstract

Introduction: Women with spina bifida often experience neurological impairments leading to pelvic organ dysfunction, including difficulties with bladder and bowel emptying that necessitate frequent Valsalva maneuvers. These factors, combined with pelvic floor weakness, may increase the risk of pelvic organ prolapse (POP). This study aimed to assess the prevalence of POP in women with spina bifida, identify associated risk factors, and evaluate outcomes of surgical management.

Methods: We retrospectively analyzed a prospectively maintained database of women with spina bifida seen at a French referral center from 2007 to 2024. Age under eighteen and congenital perineal abnormality were exclusion criteria. Primary outcome was the presence of POP grade 2 or higher (Baden-Walker classification). Secondary outcomes included symptomatic POP requiring surgery, recurrence after surgery, use of vaginal pessaries, and related symptoms.

Results: POP grade ≥2 was present in 14.8% of patients. Women with POP were older (median 44 vs. 31 years; p<0.0001) and more frequently parous (58.5% vs. 18.3%; p<0.0001), although 41.5% of POP cases occurred in nulliparous women. Apical prolapse was predominant (64.3%). Among 11 patients who underwent POP surgery, 54.5% experienced recurrence. Multivariate analysis identified parity (OR 5.33; p=0.005) and lower maximum urethral closure pressure (OR 0.97; p=0.02) as independent risk factors.

Conclusions: POP is highly prevalent in young adult women with spina bifida, including many nulliparous patients. The parity status and a low maximum urethral closure pressure could be associated with an increased risk of POP in this population. High recurrence after surgery highlights the need for information, routine screening and tailored management in this population.

Introduction

Spina bifida causes incomplete, mixed central and peripheral neurological impairment, resulting in a high prevalence of pelvic floor weakness, detrusor acontractility and bowel dysfunction.
Repeated Valsalva maneuvers to empty the bladder or bowel are a theoretical risk factor for POP, while childbirth is increasingly common in this population. Data on POP in spina bifida remain scarce.

Aim

To assess the prevalence of POP in women with spina bifida, to identify associated risk factors, and to evaluate the outcomes of surgical management.

Methods and Materials

A restrospective, monocentric study (Rennes University Hospital, France)

All women with spina bifida seen between **2007 and 2024**

Exclusion criteria: age **< 18 years**, associated **congenital perineal anomalies**

-POP graded with the **Baden-Walker** classification (speculum examination, straining and coughing)

-**Primary outcome:** POP grade ≥ 2 at initial examination

-**Secondary outcomes:** surgery for symptomatic POP, recurrence after surgery, use of pessaries, POP-related symptoms

-Univariate and multivariate logistic regression (JMP Pro v18)

Results

-**284 women** included (41 excluded).

-Median age 33 years (IQR 25-45);

-75.8% nulliparous;

-57.9% on clean intermittent catheterization.

-**POP grade ≥ 2: 14.8% (n = 42)**; 18.6% when including grade 1.

-**Predominant component: apical 64.3%**, anterior 23.8%, posterior 11.9%. Two rectal prolapses and three grade 4 uterine prolapses. 52.4% had no POP-related symptoms; 11.9% used a pessary.

Table 1. Characteristics of women with and without POP

	POP (n=42)	No POP (n=242)	p
Median age, years (IQR)	**44 (35-45)**	**31 (23.8-42)**	**<0.0001**
At least one childbirth	**58.5%**	**18.3%**	**<0.0001**
Nulliparous	41.5%	81.7%	
Mean MUCP, cmH2O	**45.9 ± 26.5**	**77.2 ± 39.8**	**<0.0001**
Cystectomy + ileal conduit	**11.9%**	**3.8%**	**0.04**
Open spinal dysraphism	60.5%	47.5%	0.14
Intermittent self-catheterization	61%	57.3%	0.81
Constipation	92.1%	82.6%	0.11
Wheelchair user	24.3%	26.4%	0.80

Table 2. Risk factors for POP – multivariate analysis

	OR	95% CI	p
Parity (≥ 1 childbirth)	**5.33**	**1.65-19.34**	**0.005**
Max. urethral closure pressure	**0.97**	**0.95-0.98**	**0.02**
Age	1.04	0.99-1.10	0.07
Closed vs open dysraphism	0.31	0.08-1.03	0.06
Constipation	1.05	0.20-6.78	0.95

-**Surgical management (n = 11):** 5 sacrocolpopexies, 3 rectopexies, 3 native tissue transvaginal repairs.

-**Recurrence in 54.5% (n = 6)**; half of them required a 2nd or 3rd surgery, 2 to 10 years after the initial procedure.

Discussion

-POP is frequent in young women with spina bifida, and **41.5% occurred in nulliparous women**, an uncommon finding in the non-neurogenic population (POP prevalence 2.9-6.2% in women in their forties).

-A **low MUCP** may reflect a flaccid perineum / weak pelvic floor.

-High recurrence rate: Valsalva voiding and pelvic floor weakness should be addressed before surgery.

-Limitations:

- Retrospective design, n
- No control group,
- Baden-Walker classification,
- Single examination.

- High prevalence of asymptomatic prolapse : primary outcomes ?

Conclusions

•POP grade ≥ 2 is highly prevalent in young adult women with spina bifida, including nulliparous women. Parity and a low maximum urethral closure pressure are associated with POP, and surgical outcomes are poor with a high recurrence rate. These findings warrant patient information and routine POP screening in this population.