

Relationship of Decubitus Ulcer on Cervix in Pelvic Organ Prolapse with POP-Q Staging

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Received: 16 September 2017 / Accepted: 23 April 2018 / Published online: 15 May 2018
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About the Author



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Abstract

Aim Utero vaginal prolapse is a very common complaint of patients in the OPD. It's an entity that existed since a very long time and hence many classifications were proposed; however, only one system was found to be a validated system for determining the degree of prolapse—POP-Q system.

Objective To determine the relationship of decubitus ulcer with POP-Q staging.

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Materials and Methods A prospective study of 100 patients with complaints of prolapse (something coming out of vagina) was considered. The patients were staged in accordance with POP-Q system. The number of patients with decubitus ulcer were noted. The area of each decubitus ulcer was also noted, by measuring the radius. Statistical tests were applied to find out if the relationship of the presence of and the area of decubitus ulcer with stage of prolapse was significant.

Results It was found that as the stage of prolapse increased, the number of patients with decubitus ulcer also increased. Also, as the Point C measurement increased, the area (small/medium/large size) of the decubitus ulcer also increased.

Conclusion There is a definite correlation between the presence of decubitus ulcer along with its area and the POP-Q component. The study also indicated that POP-Q staging is the only method of classification available that allows accurate and standardized measurements, foregoing pitfalls of all previous classifications.

Keywords POP-Q · Prolapse · Decubitus Ulcer

Introduction

Pelvic organ prolapse refers to the protrusion or downward displacement of uterus, vaginal walls and surrounding structures like bladder, bowel and rectum from their normal anatomical position by loss of the first line of support that is the endopelvic connective tissue. The cause could be either actual tears of supportive structures, or neuromuscular dysfunction, or both [1].

Uterovaginal prolapse is a common complain of elderly women in gynecology, and there is roughly a doubling in the risk of prolapse with every completed decade of life [2, 3]. The incidence of prolapse found in studies varies from 7.6 to 20% varying from region to region in India [4, 5].

Uterovaginal prolapse is an entity, which is known to medicine since the very beginning. This has further caused many systems of classifications to be proposed by different consultants which are based on the criteria from Beechem and Baden [6, 7]. The following figure shows that classifications of prolapse can be confusing and none fulfill all ideal criteria. The classifications from 1963 to 1996 are shown in Fig. 1.

There were many pitfalls noted and none of the classifications were found to be useful for research and academic purposes and hence in 1996, ICS developed the POP-Q system which was a validated standardized system for objective assessment and staging of prolapse. Since then has been adopted “published literature” [8]. It is more

precise and gives a clear idea of cut off stages, and also it is the only quantification method that is reproducible with studies demonstrating both interobserver and intraobserver reliability (Fig. 2).

The figure gives an idea about the most recent system of pelvic organ prolapse suggested by ICS. This system has shown good reliability, taking 9 points into consideration. However, the conventional system is found to be time-consuming, difficult to learn and implement in daily practice, hence, a 6 point simplified version of POP-Q has been tried by Raizada Nivedita et al. [9] which has given good correlation between POP-Q and SPOP-Q.

Stage 0 No prolapse anterior and posterior points are all – 3 cm, and C or D is between -TVL and -(TVL-2) centimeters.

Stage 1 The criteria for stage 0 are not met, and the most distal prolapse is more than 1 cm above the level of the hymen (less than – 1 cm).

Stage 2 The most distal prolapse is between 1 cm above and 1 cm below the hymen (at least one point is – 1, 0, or + 1).

Stage 3 The most distal prolapse is more than 1 cm below the hymen but no further than 2 cm less than TVL.

Stage 4 Represents complete procidentia or vault eversion; the most distal prolapse protrudes to at least (TVL-2) centimeters.

Decubitus ulcer is seen often in a patient of uterovaginal prolapse, which occurs due to localized tissue damage and venous congestion. Treatment of this ulcer is often done with moist vaginal packing using acriflavine and glycerin soaked roller gauze. However, newer modality now includes use of estrogen soaked packing [10]. If left untreated, the ulcer may lead to complications like infection. A rare case of decubitus ulcer infected with maggots has also been noted [11]. Decubitus ulceration at the prolapse component is another common feature, incidence ranging from 3.3% [12] to 50.6% [13]. It is result of circulatory changes being etiologically similar to varicose ulcer of leg (trophic ulcer) [14].

In our study, we are focusing on finding a relationship between decubitus ulcer and the POP-Q staging. In addition, decubitus ulcer as is seen on cervix, we are noting the relation and size of decubitus ulcer with protrusion on the cervix beyond the point 0 of POP-Q which is point C.

Aims and Objectives of the Study

- (1) To study the relationship between POP-Q classification and decubitus ulcer.

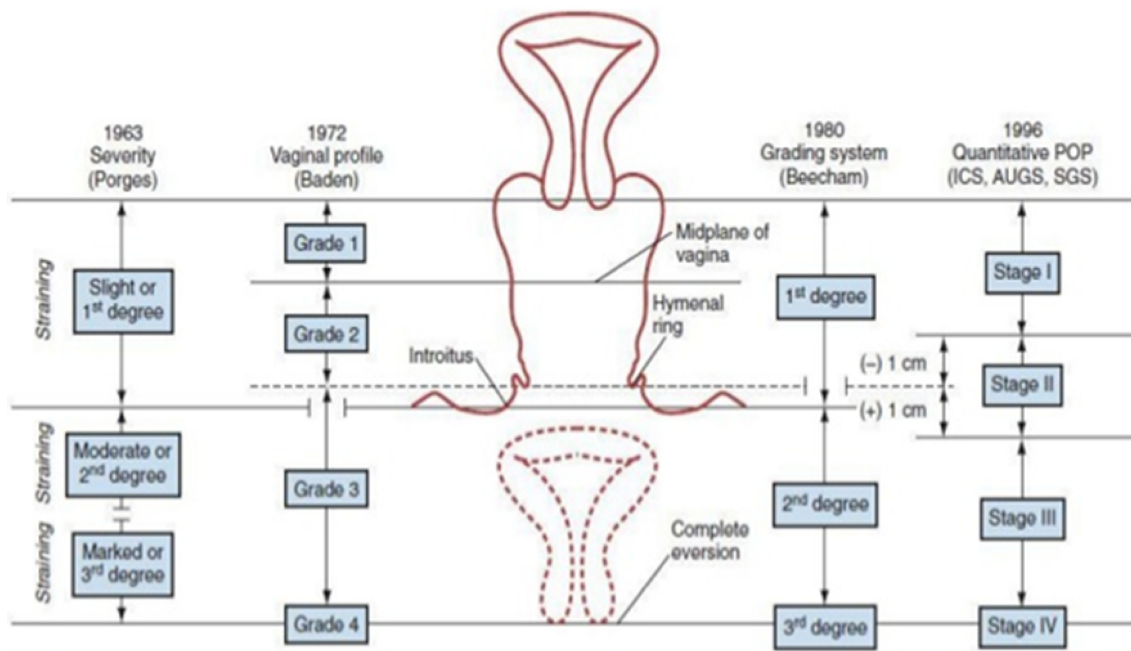
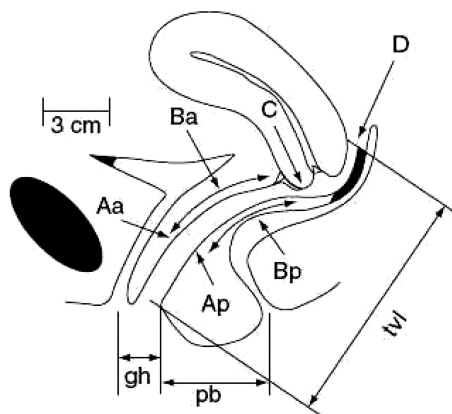


Fig. 1 Classification of uterine prolapse

Fig. 2 POP-Q grading system



Anterior wall Aa	Anterior wall Ba	Cervix or cuff C
Genital hiatus gh	Perineal body pb	Total vaginal length tvL
Posterior wall Ap	Posterior wall Bp	Posterior fornix D

- (2) To study the correlation between measurement of Point C, that is, cervical descent and size of decubitus ulcer.

Materials and Methods

This is prospective observational study of 100 patients coming to Padmashree Dr. D. Y. Patil Hospital, Pune, in which permission of ethical committee was taken.

All subjects included in the study were provided a form for written consent including necessary details required for patient.

Inclusion Criteria

Patients were greater than 18 years of age, speak and understand Marathi/Hindi/English, and also willing to come for follow-up in gynecology clinic.

Exclusion Criteria

Posthysterectomy vault prolapse and patients with any cervical pathology.

After informed consent was taken, the subjects were asked to empty their bladder for undergoing examination by using standard POP-Q technique in the dorsal lithotomy position while performing a valsalva maneuver or cough.

Currently, pelvic organ prolapse was measured using the POP-Q as described below.

There are three reference points anteriorly (Aa, Ba, and C) and three posteriorly (Ap, Bp and D). Points Aa and Ap are 3 cm proximal to or above the hymenal ring anteriorly and posteriorly, respectively. Points Ba and Bp are defined as lowest points of prolapse between Aa anteriorly or Ap posteriorly and the vaginal apex. Anteriorly, the apex is point C (cervix), and posteriorly is point D (pouch of Douglas). In women after hysterectomy, point C is the vaginal cuff, and point D is omitted. Three other measurements are taken: the vaginal length at rest, the genital hiatus (gh) from the middle of the urethral meatus to the posterior hymenal ring, and the perineal body (pb) from the posterior aspect of the genital hiatus to the midanal opening. In addition, measurement of lowest point of cervix, protruding out from introitus that is point C taken. Also, the area of decubitus ulcer was calculated, taking radius of ulcer into consideration which was divided into small size (up to 3 cm²), medium size (> 3–6 cm²) and large size (> 6 cm²) for comparison.

This system was extensively studied and demonstrated excellent intra- and interobserver reliability. In addition, since measure of 9 points was taken using centimeters, small differences were detected [6, 7].

Each patient’s measurement was noted in the grid. The symptoms were divided according to the severity of the stage in different groups, with actual measurements in centimeters. After collection of data in detail, different types of statistical tests were applied as given in the results, to know about its significance.

In the above table, we have taken into consideration 95 patients out of the 100 patients examined. Five patients who were excluded belonged to stage 1 of POP-Q and had no decubitus ulcer. Out of the 16 patients of POP-Q stage 2, one showed decubitus ulcer, while ten patients of the 48 of stage 3 showed a decubitus ulcer. Twelve patients of stage 4 suffered with decubitus ulcer. Analysis shows that number of patients with ulcer increases with increase in POP-Q stage of prolapse and was found to be statistically significant. Statistically significant *p* value < 0.036.

After taking extensive review of the literature, we could not find any similar study in comparison with our result. Probably, this is the first study that is done, on this topic (discussion of table and compared with the literature).

In the following table, that is Table 1, we have included the five patients who belonged to POP-Q stage 1. They did not have a decubitus ulcer. All 100 patients were considered, and again the test was applied. And it showed the same result, that is, with the increase in POP-Q stage, the incidence of decubitus ulcer increased.

Table 1 Analysis if we include stage 1 then

POP-Q stage	Number of patients with decubitus ulcer	Number of patients without decubitus ulcer	Total
1	0	5	5
2	1	15	16
3	10	38	48
4	12	19	31
Total	23	77	100

Significant *p* value: < 0.048

Table 2 Graph: analysis of relationship of measurement of point C and area of decubitus ulcer

Area of decubitus ulcer	Measurement of point C and number with percentage of patients		
	1 cm	> 1–6 cm	> 6 cm
Up to 3 cm ² (small size)	1 100%	2 20%	0 0%
> 3–6 cm ² (medium size)	0 0%	5 50%	3 25%
> 6 cm ² (large size)	0 0%	3 30%	9 75%
Total	1	10	12
Total number of patients = 23			

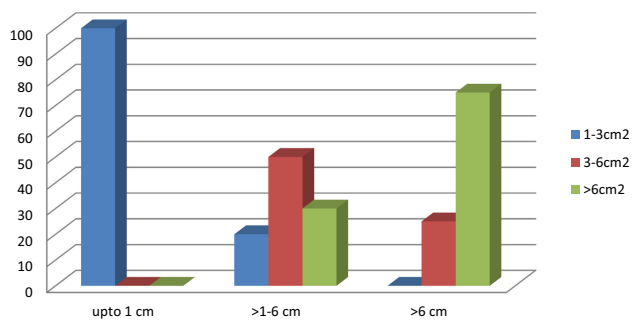
In Table 2, we have taken area of decubitus ulcer and correlated it with the measurement of Point C. As seen from Table 3, 23 out of the 100 patients showed the presence of decubitus ulcer.

When point C measured 1 cm, only one patient (100%) had small-sized decubitus ulcer. When Point C measured from 1 to 6 cm, ten patients showed the presence of an ulcer with two patients (20%) showing small-sized ulcers, five patients or 50% having medium-sized ulcers and three or 30% patients had large-sized ulcers. Further, when point C was more than 6 cm, it was found that 12 patients had an ulcer with maximum being large sized (75%), and only three patients had (25%) medium-sized ulcers.

Table 3 Analysis of 95 patients with the presence of decubitus ulcer according to POP-Q stage

POP-Q staging	Number of patients with decubitus ulcer	Number of patients without decubitus ulcer	Total
2	1	15	16
3	10	38	48
4	12	19	31
Total	23	72	95

Relationship of Point C and area of the decubitus ulcer with percentage of patients



As seen in the bar diagram and the table, small-sized ulcer was present in one patient only, who had point C measurement less than 1 cm. Fifty percentage of (five out of ten patients) patients having point C measurement between 1 and 6 cm showed medium-sized decubitus ulcer. Seventy-five percentage of patients (9 out of 12) with Point C measurement greater than 6 cm showed a large decubitus ulcer. Both show clear-cut rising trend of increase in ulcer size with increase in Point C. From the above findings, it can be inferred that as the measurement of point C increases, the area of the decubitus ulcer also increases. But, statistical tests could not be applied due to inadequate sample size.

Though the POP-Q staging is a reliable and accurate way of staging prolapse and decubitus ulcer is a common finding, almost no study has been undertaken to find a correlation between the two.

Results

Out of the 100 patients that were examined, 23 patients had a decubitus ulcer. As the POP-Q stage increased, number of patients with decubitus ulcer also increased.

In these 23 patients, Point C of prolapse patient was measured, and as shown in Table 2, there was only one patient with small decubitus ulcer having point C measurement < 1 cm followed by five out of ten patients (50%) having medium decubitus ulcer with Point C of 1–6 cm and nine out of twelve (75%) patients had large decubitus ulcers with Point C measuring > 6 cm.

Study shows that there is a definite trend of increasing ulcer size with increasing Point C measurement.

This type of study which requires measurement of prolapse in centimeters is possible by POP-Q method only and not possible by old methods.

As mentioned previously, we could not get any similar study done in the past, for comparison with our study.

Discussion

As described above, the POP-Q classification is very specific, and gives an accurate idea, due to the measurement in centimeters, required for statistical and research purpose, due to which it has been made possible to conduct our study.

Today due to POP-Q classification we have been able to study in much more detail due to the measurement in centimeters. It clearly shows that increasing measurement is associated with increasing number of patients of decubitus ulcer. Most importantly we have been able to apply statistical tests of significance to support our research study, which was not possible in the past. The advantage of this classification for research study is being taken for studying different aspects of pelvic organ prolapse. Madkar et al. [15] have shown that there is no need to repeat an examination twice that is early and late in the day to document the full extent of pelvic organ prolapse. Deshpande et al. [16] have statistically proved that there is a correlation between urinary symptoms and POP-Q component and stage, that is, symptomatology increases as POP-Q stage increases.

As quoted by Paul Riss, POP-Q is a breakthrough invention [17].

One of the obstacle for doing research study by general practitioners and junior residents is its complexity and time-consuming procedure for which Ovama et al. [18] has suggested an abbreviated system to be considered which will allow its more widespread use after peer review of the literature.

Conclusion

As aimed in our study, we can draw the following conclusions.

- (1) There is clear-cut statistical significance test result which shows that as the POP-Q stage increases the number of patients with decubitus ulcer also increases.
- (2) As the measurement of leading point of cervical descent increases, the size of decubitus ulcer also increases.
- (3) The long-term implication of our study also indicates that the entity of decubitus ulcer, which is often ignored, should be properly looked for and treated for as early as possible. This is because as the stage increases, its size increases.

Our study has shown that there is definite correlation between the presence of decubitus ulcer along with its size and POP-Q component. This classification is practically overcoming all the difficulties to obtain the required statistical figures, because it is accurate and gives precise and accurate measurements. We have not come across any type of such study in the literature, and we think that more studies should be done on this problem so as to confirm the results. It obviously adds much to our knowledge of the genital prolapse taking into consideration a simplified version.

Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Standards All procedures followed were in accordance with the ethical standards of the responsible committee on human experiments and with the 1975 Declaration of Helsinki and revised in 2008(5).

Informed Consent Informed consent was obtained from all the patients included in the study.

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