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(EFFECTS OF HYSTERECTOMY ON PELVIC FLOOR AND SEXUAL FUNCTION: A COHORT STUDY)

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Abstract

Objective: *The chief objective is to measure the association between abdominal hysterectomy and development of pelvic wall dysfunction and sexual dysfunction.*

Study Design: *Prospective cohort study*

Place and duration of study: *The study was conducted in hospital over a period of twelve months from Jan-Dec 2023*

Methodology: *We included 100 females undergoing abdominal hysterectomy with help of WHO sample size calculator and followed them at six months and one year interval to find association between the hysterectomy and development of pelvic floor and sexual dysfunction according to criteria furnished.*

Results: *The relative risk (R.R) development of pelvic dysfunction at six months post-operatively was 1.2(95% CI: 0.68-2.10) and one-year post-operatively was found to be 0.48 (95% CI: 0.10-2.23) which shows that risk of development of pelvic dysfunction reduced after one year. The relative risk of development of sexual dysfunction at six months was 1.33 (95% CI: 0.55-3.23) and after one year of surgery was 2.0 (95% CI: 0.54-7.3).*

Conclusion: *We arrived at the conclusion that there is risk of development of pelvic floor and sexual dysfunction after abdominal hysterectomy but it improves over time.*

INTRODUCTION

Hysterectomy is a frequently performed gynecological surgery which has variety of indications and types like abdominal, vaginal, complete, subtotal and laparoscopic hystrectomy. First abdominal hysterectomy was performed in 18th century, since then it has undergone a lot of evolution. It has now being carried out with telerobotic assistant in different centers of excellence worldwide[2]. Hysterectomy is a major gynecological procedure which has many

physiological and psychological implications[4]. It has also been associated with a number of complications like prolapsed of pelvic viscera, urinary incontinence, bowel disturbances, fistulas, pelvic floor dysfunction[3]. It has also been linked to loss of libido and sexual dysfunction which is worrisome especially when female is young and sexually active.

The rate of hysterectomy is quite high in Pakistani population that is 6.6 hysterectomies per one thousand females[4]. A small fraction is contributed by morbidly adherent placenta which leads to cesarean hysterectomy and it is attributed to multiparity and high cesarean section rate[5] and unfortunately it leads to hysterectomy in comparatively younger females[6]. The pelvic floor dysfunction and sexual disturbances are two complication of our interest as local literature about these adverse outcomes is scare, low quality and somewhat conflicting[7]. These complications have been suggested to arise after hysterectomy as indicated by some international literature[8].

The study by Forsgren et al[9] which is our reference study has highlighted that there is development of some degree of pelvic floor and sexual dysfunction after hysterectomy which improves gradually but remains static after that. The sexual maturity, sexual practices, child birth, age of marriage or age at which patients become sexually active is different in their population than ours. The demographic characteristics of their population are also diverse which cannot be generalized to our varied population. Therefore the rationale of our study is to study the association of pelvic floor and sexual dysfunction after hysterectomy and to ascertain whether there is an improvement over time or not in Pakistani females considering that the experiences and risk factors for complications may differ from those observed in the international literature.

Methodology:

Prospective Cohort Study was conducted in a tertiary care hospital in Rawalpindi. We calculated sample size with help of WHO sample size calculator using the reference study of Forsgren et al as mentioned earlier keeping the confidence level of 95% (1-α), relative precision (ε) of 0.50, anticipated probability of disease among exposed (P1) to be 0.20 and anticipated probability of disease among non-exposed (P2) to be 0.10, anticipated relative risk (R.R) to be 2.00. The sample size came out to be 74. We collected data prospectively over a period of eight months and enrolled 120 patients after application of inclusion and exclusion criteria. **Inclusion criteria:** Patients who underwent elective abdominal hysterectomy or elective cesarean hysterectomy with bilateral salpingoophorectomy with age ranging from 25 to 60 years were included in the study. We included only married patients who had no history of uterine prolaspe who have had at two full term pregnancies before hysterectomy. **Exclusion criteria**: Patients who had vaginal hysterectomy, subtotal hysterectomy, emergency hysterectomy, mentally incapacitated, dementia, systemic diseases (diabetes, hypertension), having other complications (fistula, ureteric injury and visceral prolapsed) and patients who failed to follow up were excluded from the study.

We developed objective criteria for assessment of pelvic floor muscle strength by utilizing oxford grading scale modified by laylock[10] and subjective criteria by asking patients for absence or presence of stress incontienence[11]. The Modified oxford grading scale consisted of six point scale based on vaginal muscles strength. If there was no contraction then zero point was recorded. If there was flicker then 1 number was recorded, 2 indicated weak contraction, 3 indicated moderate contraction, 4 indicated good contraction and 5 indicated strong contraction. The patients who had modified oxford grading scale more than 3 and no stress urinary incontinence were labeled to have no pelvic dysfunction. The patients who had Modified oxford grading scale less than 3 or had stress urinary incontinence were labeled to have pelvic dysfunction. The patients who didn't fulfill the criteria of pelvic dysfunction were excluded from final results. The assessment of sexual function was done through modification of female sexual function index (FSI)[12]. We questioned about six domains of sexual function including desire, arousal, lubrication, orgasm and satisfaction. The

ladies who said yes to greater than 4 of six questions were labeled to have sexual dysfunction. The patients were booked through outpatient department. Their consent was obtained after detailed counseling. The patients were subjected to detailed investigations and pre-anesthesia assessment before surgery. All the patients underwent elective abdominal hysterectomy with pfannenteil incision. After hysterectomy patients were asked for follow up at six months and one year. When the patients visited gynecology outpatient department they were assessed by experienced gynecologist. Pelvic floor muscle strength was assessed through vaginal examination and patients were asked to perform kegel. The Modified oxford grading scale was used to grade the pelvic dysfunction. The patients were asked about stress in continence. The patients who had had Modified oxford grading scale less than 3 along with stress incontinence were labeled to have pelvic dysfunction. The assessment of sexual function was done through female sexual function index (FSI) by a senior registrar and grade was assigned according to positive responses. The presence or absence of pelvic dysfunction and sexual dysfunction was computed. Following demographic details were registered: age, BMI, parity and mode of previous deliveries (cesarean delivery of simple vaginal delivery). The primary outcome was relative risk of development of pelvic and sexual dysfunction at 6 months and one year after hysterectomy.

The data was collected on a Performa designed for objective and subjective assessment and recorded on social package of statistical science (SPSS) version 23. Quantitative and qualitative variables were analyzed through appropriate statistical tools and relative risk was computed to find association. The frequencies of primary outcomes were compared through chi-square analysis and p value less than 0.05 was considered significant.

Results:

Total 100 patients fulfilled the study protocol and they were included in the statistics. The mean age of the patients was 51.01±9.65 years and mean body mass index (BMI) was 28.98±2.83 kg/m^2. The minimum age was 28 years and maximum age was 60 years. 20% patients underwent elective cesarean abdominal hysterectomy while 80% underwent non-cesarean elective hysterectomy for benign causes.

All the patients were mutipara with parity of 3 in12% patients, four in 23% patients, Five in 42% patients, six in 14% patients and seven in 9% patients. 18 patients never had vaginal delivery, 19% had 1 vaignal delivery, 18% had 2 vaginal deliveries, 21 had 3 vaginal deliveries, 16% had 16 vaginal deliveries, 6% had 6 vaginal deliveries and 2% had two vaginal deliveries in past. Similarly 10 patients never has cesarean delivery in past. 20% patient had previous one cesarean, 15% had previous two cesareans, 24% has previous 3 cesareans, 24% had previous 4 cesareans and 7% had previous five cesareans. The demographics are presented in Table-I.

39% patients developed pelvic dysfunction after 6 months post-operatively while 20% patients developed sexual dysfunction after 6 months. When these patients were assessed after 1 year, pelvic dysfunction was present in only 17% patients with p value of <0.001 and sexual dysfunctions was present in only 9(9%) patients with p value of <0.001. The relative risk (R.R) development of pelvic dysfunction at six months post-operatively was 1.2; 95% confidence interval (95% CI: 0.68-2.10) and one-year post-operatively was found to be 0.48 (95% CI: 0.10-2.23) which shows that risk of development of pelvic dysfunction reduced after one year. The relative risk of development of sexual dysfunction at six months was 1.33 (95% CI: 0.55-3.23) and after one year of surgery was 2.0 (95% CI: 0.54-7.3) as displayed in Table-II.

9(45%) patients with cesarean hysterectomy developed pelvic dysfunction compared to 30(37%) patients undergoing non-cesarean hysterectomy who developed pelvic dysfunction at six months which was reduced to 2(10%) and 15(18.8%) patients after one year respectively. 5(25%) cesarean hysterectomy patients developed sexual dysfunction after six months and 15(18.8%) regular hysterectomy patients developed sexual dysfunction which reduced to

3(15%) and 6(7.5%) respectively after one year as shown in Figure-1.

Table-I: The demographic characteristics of the cohort under study (n=100)

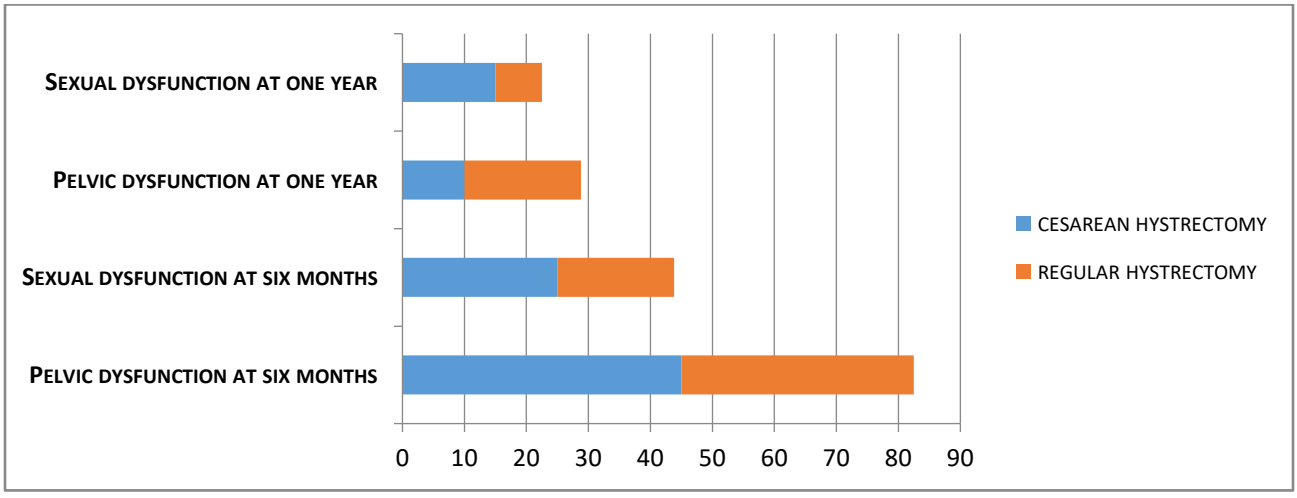
		Mean±SD
Age (Years)		51.0±9.6
BMI (Kg/M^2)		28.98±2.8
		Frequency (%)
Parity	**3**	12(12)
	4	23(23)
	5	42(42)
	6	14(14)
	7	9(9)
Type of Hysterectomy	**Elective Cesarean Hystrectomy**	20(20)
	Elective Abdominal Hystrectomy	80(80)
Previous Spontaneous vaginal deliveries	**zero**	18 (18)
	1	19 (19)
	2	18 (18)
	3	21(21)
	4	16 (16)
	5	6 (6)
	6	2(2)
Previous cesarean sections	**No previous cesarean**	10 (10)
	Previous 1 cesarean	20 (20)
	Previous 2 cesarean	15 (15)
	Previous 3 cesarean	24 (24)

	Previous 4 cesarean	24 (24)
	Previous 5 cesarean	7 (7)

Table-II: The frequency and Relative Risk (R.R) of pelvic floor dysfunction and sexual dysfunction in patients after hysterectomy (n=100).

		At six months	At one year	P value
Pelvic Floor Dysfunction	Yes	39 (39)	17 (17)	<0.001
	no	61 (61)	83 (83)	
Sexual Dysfunction	Yes	20 (20)	9 (9)	<0.001
	no	80 (80)	91 (91)	
		Relative.Risk (R.R) (95% confidence interval)	Relative.Risk (R.R) (95% confidence interval)	
Relative Risk Of Development Of Pelvic Floor Dysfunction		1.2 (95% CI: 0.68-2.10)	0.53 (95% CI: 0.13-2.1)	
Relative Risk Of Development Of Sexual Dysfunction		1.33 (95% CI: 0.55-3.23)	2.0 (95% CI: 0.54-7.3)	

Figure-1: The Frequency of Pelvic Floor Dysfunction and Sexual Dysfunction With Rest To Different Types of Hysterectomies



Discussion:

We observed that there is considerable pelvic and sexual dysfunction after hysterectomy. Mostly patients are unaware of it or do not recognize it or become accustomed to it till the time it eventually settles completely or partially. When we did objective measurement of pelvic muscle strength and asked close ended questions to assess sexual dysfunction, patients reciprocated appropriately and we were able to draw conclusions. Due to misinterpretation of religious freedom and cultural barriers , the sexual problems are not discussed candidly in Pakistani society which leads to problems like barricade to contraception, insufficient spacing of children and reproductive health of women[13].

Hysterectomy is a leading gynecological surgery in Pakistan with peak incidence in middle-aged women with mean age of 45 years. Early marriage, child birth at tender age, multiparity and increased incidence of fibroids are factors attributable for comparatively young age for hystrectomy[14]. Owing to a younger age women remain sexually active after hysterectomy but they require rehabilitation. There is a need to highlight and investigate post-hysterectomy pelvic floor and sexual dysfunction so as to identify patients who require adequate guidance and advice regarding early rehabilitation. Our study highlighted that sexual function improves slowly but surely. However there is evidence to support the idea that profound psychological trauma and fear of marital destabilization can lead to prolongation of sexual dysfunction[15]. We followed the patients for one year post-hysterectomy but we can extrapolate that there should be more improvement of sexual function in comparatively younger females. Due to time constraint, we could only follow-up the patients to one year.

According to a local cross sectional study it was established that greater than 90% percent patients had no effect on libido rather in 20% females there was an increase in sexual desire after hystrectomy[15]. The evidence presented in their study was not analogous to findings of our study and also the findings of their were conflicting to international literature which implied that hysterectomy with or without bilateral salpingoophorectomy was associated with higher incidence of sexual dysfunction1[16,17].

The pelvic floor dysfunction is characterized by a multitude of symptoms including urinary incontinence, difficultly in micturition, stress incontinence, pelvic pain, dyspareunia, constipation and proctalgia fugax[18] . According to study conducted by Blandon et al[19] the incidence of repair of pelvic floor after hysterectomy was almost 3 percent. Their data revealed that the fraction of female patients who were operated upon for pelvic repair after abdominal hysterectomy escalated from 3 percent at twenty years to five percent at thirty years. However they studied pelvic dysfunction post- hysterectomy in women who had uterine prolapse. Their study also included vaginal hysterectomy which has higher correlation with pelvic dysfunction. Our study showed that pelvic dysfunction improved substantially after one year. However, we cannot rule out the theoretical possibility of need of pelvic repair in future in these patients due to advancing age. In order to ascertain that a longer follow up and patience is required. Ideally these women should be followed till 70 years of age especially for pelvic dysfunction.

Conclusion:

We arrived at the conclusion that there is risk of development of pelvic floor and sexual dysfunction after abdominal hysterectomy but it improves over time that is almost one year.

Limitations of study:

We followed patients up to one year only. A long-term follow-up is required to ascertain the longevity of these findings.

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Conflict Of Interest: None to declare

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Authors Contributions:

XX &YY: Drafting of work, design analysis, data acquisition, data interpretation and approval of final version to be published

ZZ&AA: Data analysis, data acquisition, drafting of work, critical revision, approval of final version to be published

EE&DD: Drafting of work, critical review, approval of final version to be published.

Authors agree to be liable for all areas of research in making sure that reliability and validity of this research work is investigated.

References:

Müller A, Thiel FC, Renner SP, Winkler M, Häberle L, Beckmann MW. Hysterectomy-a comparison of approaches. Dtsch Arztebl Int. 2010 May;107(20):353-9. doi: 10.3238/arztebl.2010.0353. Epub 2010 May 21. PMID: 20539807; PMCID: PMC2883234.

Kelly EC, Winick-Ng J, McClure JA, Peart T, Chou Q, MacMillan B, Leong Y, Vilos A, Vilos G, Welk B, McGee J. Hysterectomy in Ontario: a population-based study of outcomes and complications in minimally invasive compared with abdominal approaches. Int J Gynaecol Obstet . 2019 Aug 1;41(8):1168-76.

Taylor RH, Funda J, Eldridge B, Gomory S, Gruben K, LaRose D, Talamini M, Kavoussi L, Anderson J. A telerobotic assistant for laparoscopic surgery. IEEE Engineering in Medicine and Biology Magazine. 1995 May;14(3):279-88.

Majeed TA, Adnan RA, Mahmood ZA, Mahmood H. Audit of gynecological Hysterectomies. Pak J Med Health Sci. 2013;7(3):684-7.

Verbeek M, Hayward L. Pelvic Floor Dysfunction And Its Effect On Quality Of Sexual Life. Sex Med Rev. 2019 Oct;7(4):559-564. doi: 10.1016/j.sxmr.2019.05.007. Epub 2019 Jul 24. PMID: 31351916.

Naseeb S, Dossal A, Rashid S. An Audit of Hysterectomy at Jinnah Postgraduate Medical Centre, Karachi. JSOGP2021 Jun 11;11(2):95-9.

Memon FP, Haidar G, Anjum F, Khan HS, Memon R. Sexual Pattern of Women After Total Hysterectomy. JSOGP. 2019;9(1):36-40.

Kutuk MS, Ak M, Ozgun MT. Leaving the placenta in situ versus conservative and radical surgery in the treatment of placenta accreta spectrum disordersInt J Gynaecol Obstet .2018 ;140(3):338-44.

Forsgren C, Amato M, Johannesson U. Effects of hysterectomy on pelvic floor function and sexual function—A prospective cohort study. Acta Obstetricia et Gynecologica Scandinavica. 2022 ;101(10):1048-56

Brennen R, Frawley HC, Martin J, Haines TP. Group-based pelvic floor muscle training for all women during pregnancy is more cost-effective than postnatal training for women with urinary incontinence: cost-effectiveness analysis of a systematic review. J. Physiother. 2021 Apr 1;67(2):105-14.

Tulokas S, Mentula M, Härkki P, Brummer T, Jalkanen J, Kuittinen T, Mäkinen J, Sjöberg J, Tomas E, Rahkola-Soisalo P. Stress urinary incontinence after hysterectomy: a 10-year national follow-up study. Arch Gynecol Obstet. 2022 Apr;305(4):1089-1097. doi: 10.1007/s00404-021-06378-z. Epub 2022 Jan 21. PMID: 35061067; PMCID: PMC8967811.

Yule MA. Female sexual function index. Encyclopedia of quality of life and well-being research. Netherlands: Springer. 2014:2244-6.

Alomair, N., Alageel, S., Davies, N. et al. Factors influencing sexual and reproductive health of Muslim women: a systematic review. Reprod Health. 2020;**17**:33-36. (2020). https://doi.org/10.1186/s12978-020-0888-1

Yasmin TA, Chaudhry JN. Audit of Gynaecological hystrectomies. PJMHS. 2011;15:3.

Mohammadi-Zarghan S, Ahmadi K. Marital adjustment, sexual function, and body image after hysterectomy. Shiraz E-Medical Journal. 2021;22(9):30-39.

Suzanne J Dedden, Marlene A Werner, Jorrit Steinweg, Birgit I Lissenberg-Witte, Judith A F Huirne, Peggy M A J Geomini, Jacques W M Maas, Hysterectomy and sexual function: a systematic review and meta-analysis, *JSM*. 2023;4(20): 447–466 .https://doi.org/10.1093/jsxmed/qdac051

Wang Y, Ying X. Sexual function after total laparoscopic hysterectomy or transabdominal hysterectomy for benign uterine disorders: a retrospective cohort. Brazilian Journal of Medical and Biological Research. 2020;14(3);53-58.

Quaghebeur J, Petros P, Wyndaele JJ, De Wachter S. Pelvic-floor function, dysfunction, and treatment. Eur. J. Obstet. Gynecol. Reprod. Biol. E UR J. 2021 Oct 1;265:143-9.

Blandon RE, Bharucha AE, Melton LJ 3rd, Schleck CD, Babalola EO, Zinsmeister AR, Gebhart JB. Incidence of pelvic floor repair after hysterectomy: A population-based cohort study. Am J Obstet Gynecol. 2007;197(6):664.e1-7. doi: 10.1016/j.ajog.2007.08.064. PMID: 18060973; PMCID: PMC2562278