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Is Caesarean Section Protective Against Pelvic Organ Prolapse?

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Abstract

Normal delivery puts significant strain on the pelvic floor musculature especially when the internal rotation of the presenting part takes place and even more when the foetal positions are posterior. Caesarean delivery rate has gone significantly high in recent years due to liberalization of the indications for caesarean section. Here is a study of current knowledge indicating higher incidence of prolapse in patients who had vaginal delivery in comparison to patients who had abdominal delivery.

Introduction

Reproduction is an important function of a living organism. Labour is the process of giving birth to a new born. It involves lot of involuntary as well as voluntary efforts rendering the pelvic floor weak predisposing it to prolapse at the later age. Pelvic floor disorders includes stress urinary incontinence, overactive bladder, pelvic organ prolapse and faecal incontinence. The prevalence of pelvic floor disorders rises with age: 39% in women aged 60-70 years and 50% of women of age 80 years or more

suffer from at least one of the disorders. (1) pelvic organ prolapse is descent of uterus and vaginal wall into the vaginal canal. There is weak correlation between symptoms and objective prolapse severity (2-4). In general there are more symptoms when the prolapse is beyond the hymen. (4-6). Recent studies have shown that prolapse is more common in parous women as compared to nulliparous women(7) .Injury to the pelvic floor muscles during vaginal child birth is associated with reduced pelvic floor strength. Several studies have

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shown that there is significant levator ani injury during normal delivery especially in operative vaginal delivery (8-10). In previous era before the advent of contraception, lack of education and limited requirements for life resulted in continued activity of reproduction till later age. so prolapse was very common problem in old age but now with availability of contraceptives, awareness for benefits of small family. Improving standard of living and limited resources of income has provoked a desire for small family. Availability of safer anaesthesia, blood components and availability of better antibiotics and advent of safer and better surgical techniques and establishment of health care facilities at small centres have aided in increasing no of operative deliveries in this industrialized world. Implementation of consumer protection act, has also played a vital role in liberalization for operative delivery.

As a result, now a days caesarean section enjoys no 1 position amongst all surgeries being performed globally. Awareness for health and increasing education amongst the women population makes them to consult gynaecologist for their menstrual ailments, resulting in many hysterectomy operations now a days before reaching menopausal age. So now a days cases of prolapse are encountered infrequently. Has increasing no of caesarean section provided protection to the women against prolapse at older age ?

AIM

Attending the gynaec opd and coming across less no of POP patients and hardly finding a caesarean scar on the abdomen of woman with prolapse prompted us to carry out retrospective study to ascertain the protection provided by c s operation by virtue of fibrosis in the anterior uterine wall making the uterus more anteverted as well as the post operative adhesions indirectly strengthening the uterine supports. Our aim was to study the possible protection provided by caesarean against uterovaginal prolapse.

objectives

(1) the objective of the study was to find out association between caesarean section and pelvic organ prolapse at a later age.

(2) To find out any protection offered by caesarean scar against pelvic floor weakness.

Methodology

This is a retrospective observational study of the patients who approached Dhiraj hospital as outpatient as well as indoor admissions the time period taken for the study was from January 2007 to Dec 2021. The study was conducted using Dhiraj hospital indoor as well as outdoor register to identify the patients who were diagnosed to have POP. The data was linked to Vadodara district birth register.

The indoor as well as outdoor registers were retrieved from the MRD and data was collected for the female patients who attended the gynaec OPD with various ailments. The data was analysed under various headings like age of the patient at the time of 1st delivery, parity, no of hospital deliveries, mode of deliveries, presenting complaint of POP, duration of the symptoms, associated symptoms of urinary or faecal incontinence, indications for caesarean section, any h/o prolonged obstructed labour, no of instrumental deliveries , episiotomy, no of planned caesarean section and interval between last pregnancy and development of POP.

Inclusion Criteria

- Patients attending gynec OPD with gynaecological complaints
- Patients who had either vaginal delivery or caesarean section
- Patients who had last delivery before at least 10 years
- Patients with normal sized uterus

Exclusion Criteria

- *Patients having uterine fibroids or adenomyosis
- *Nulliparous patients
- *Patients who had obstetric hysterectomy/ caesarean hysterectomy.
- *Patients having raised intraabdominal pressure e.g. ascites or ovarian tumor
- *Patients having chronic constipation or COPD
- *Patient having congenital mullerian duct anomalies
- *Patients having connective tissue disorders

Observation & Results

The total no of patients approaching Dhiraj hospital were as under.

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Table 1

YEAR	No of female patients	2020	298537
		2021	297378
2007	179853		
2008	186532		
2009	194674		
2010	203541		
2011	209865		
2012	221986		
2013	232184		
2014	253437		
2015	270963		
2016	281754		
2017	290638		
2018	296759		
2019	292546		

Our hospital is located in the outskirts of Baroda city easily approachable to the population of Vaghodia and Dabhoi. As the time elapsed, due to its dedicated services to the mankind, it gained popularity in the nearby areas and now draining patients from far away places and neighbouring states of Rajasthan, Maharashtra and Madhya pradesh.

The growth of our hospital can be adjudged by looking at the constant rise in the inflow of the patients as seen in table 1...

TABLE 2

YEAR	NO OF PATIENTS IN GYNEC OPD	No of pt with h/o normal labour	No of patients with prolapse	No of pt with h/o lscs	No of pt with prolapse	NO OF PATIENTS WITH PROLAPSE	Percentage of pt with prolapse
2007	20764	18972	683	1792	26	709	3.414
2008	21876	19863	967	1953	27	994	4.543
2009	20981	18952	902	2029	28	930	4.432
2010	19653	17667	789	1986	26	815	4.146
2011	20568	18482	733	2086	28	761	3.699
2012	22150	20008	774	2142	27	801	4.003
2013	24283	21830	763	2453	33	796	3.646
2014	26689	23997	853	2692	35	888	3.327
2015	28972	26198	947	2774	36	983	3.752
2016	27685	24871	926	2814	37	963	3.478
2017	30954	28140	982	2814	36	1018	3.288
2018	32166	28857	978	3309	41	1019	3.167
2019	34346	30749	1067	3597	37	1104	3.214
2020	33153	29541	1035	3612	38	1073	3.236
2021	34278	30519	1043	3759	41	1084	3.162
Total	398,518	358646				13938	3.497

Since our hospital has implemented all the govt schemes for maternal and child welfare to reduce the maternal mortality and child welfare, female

patients form a major chunk of the patients. As a consequence of which gynaecology work is substantially high which can be seen in table 2

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YEAR	No of pt with h/o normal labour	No of patients with prolapse	percentage
2007	18972	683	3.6
2008	19863	967	4.868
2009	18952	902	4.759
2010	17667	789	4.465
2011	18482	733	3.966
2012	20008	774	3.868
2013	21830	763	3.495
2014	23997	853	3.554
2015	26198	947	3.614
2016	24871	926	3.683
2017	28140	982	3.489
2018	28857	978	3.389
2019	30749	1067	3.47
2020	29541	1035	3.503
2021	30519	1129	3.699
Total	358646	13528	

As with the passage of time craving for small family, unwillingness to bear the labour pains and abolished social obsession for male child has reduced the labour rate with substantial increase in

the no of operative delivery. Gradual decline in the percentagr of patients coming with POP with passage of time is noteworthy as seen in table 3

TABLE 4

YEAR	No of pt with h/o LSCS	No of pt with prolapse	percentage
2007	1792	26	1.451
2008	1953	27	1.382
2009	2029	28	1.379
2010	1986	26	1.309
2011	2086	28	1.342
2012	2142	27	1.26
2013	2453	33	1.345
2014	2692	35	1.3
2015	2774	36	1.297
2016	2814	37	1.314

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2017	2830	36	1.272
2018	3309	41	1.239
2019	3597	37	1.028
2020	3612	38	1.024
2021	3800	40	1.052

Above table shows the no of patients suffering from prolapse who had all deliveries through vaginal route. It ranges between 3.5 and 5 %

Above table shows the incidence of prolapse in patients with h/o previous LSCS. A lower incidence of prolapse is evident. i
It is between 1 and 1.5

As can be seen it is clear that the incidence of prolapse in patients with h/o LSCS whorls between 1 and 1.5. while in patients who had normal labour it is between 3 and 4. The lower percentage in recent years could be ascribed to increased operative management for gynaecological disorders.

TABLE 5

YEAR	NO OF PT WITH PROLAPSE	NO OF PT WITH H/o normal labour	% of prolapse pt with h/o normal labour	NO OF PT WITH H/O LSCSSs	% of prolapse pt with h/o lscs
2007	276	250	90.58%	26	9.420%
2008	270	247	91.482%	23	8.518%
2009	263	241	91.635%	22	8.365%
2010	252	234	92.858%	20	7.936%
2011	247	233	94.332%	14	5.668%
2012	239	221	92.051%	19	7.949%
2013	231	215	93.074%	16	6.926%
2014	228	213	93.421%	15	6.579%
2015	223	209	93.722%	14	6.278%
2016	234	220	94.018%	14	5.982%
2017	222	210	94.340%	12	5.660%
2018	217	206	94.931%	11	5.069%
2019	208	202	95.674%	09	4.326%
2020	196	186	94.898%	10	5.102%
2021	182	175	96.154%	08	4.396%
total	3488	3271	93.778%	217	6.221%

As seen from the table 4 that it is clear that unsupervised home deliveries conducted by traditional birth attendants account for a major number of the prolapse patients. Practice of kulla

done by them before full dilatation of cervix puts pelvic floor to excessive stretch ultimately weakening of the pelvic floor and uterine supports.

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On the contrary LSCS done in proper time spares the pelvic floor from undue damage.

TABLE 6 PARITY WISE ANALYSIS

PARITY	H/O NORMAL LABOUR	H/O HOME DELIVERY	H/O LSCS (all)	H/O NORMAL LABOUR AND LSCS	H/OBSTRUCTED LABOUR	H/O PLANNED CS
PARA 1	171	118	24	0	19	05
PARA 2	348	257	18	28	17	11
PARA 3	544	398	06	23	13	10
PARA 4	962	786	NA	66	25	41
PARA 5 AND ABOVE	1246	1109	NA	52	20	32

As can be seen the chances of prolapse increase with increasing parity. As we know each pregnancy and labour weaken the pelvic floor. So the women with higher parity and deliveries in succession at shorter interval make her vulnerable for prolapse especially after menopause, when the oestrogen supports are withdrawn. With increasing parity even the babies born are also heavier adding to the pelvic floor damage.

The patients who have been delivered by LSCS are also not totally immune to POP as many

of the operations are done for obstructed delivery after a long trial of labour. In some cases more conservative approach of gynaecologist also plays role. Risk of pop in later life is sizeably less in women who had all the elective planned abdominal deliveries. Instrumental deliveries to cut short the second stage of labour also predispose the pelvic floor to excessive stretch especially if applied prematurely before rotation of the foetal head

TABLE 5 HOSPITAL DELIVERY AND INSTRUMENTATION

PARA	HOSPITAL DELIVERY	ONLY EPISIOTOMY	FORCEPS	VENTOUSE	LSCS
ONE	53	06	07	16	23
TWO	91	19	10	62	46
THREE	146	18	16	83	29
FOUR	176	27	12	71	66
FIVE AND MORE	137	36	04	45	52

As can be seen instrumental intervention to cut short the second stage of labour is also a culprit in the aetiology of prolapse at later age.

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TABLE 6: RECURRENCE OF VAULT PROLAPSE AFTER VAGINAL HYSTERECTOMY WITH A P REPAIR

Total no of vault prolapse	h/o vaginal delivery	h/o prev LSCS
06	05	01

Vault prolapse patients after abdominal and vaginal hysterectomies are indicative of pelvic floor weakness. In our study we witnessed vault prolapse patients as mentioned above.

The recurrence of prolapse even after AP repair indicates the gravity of damage caused to the pelvic floor and the weakening of the supports following vaginal delivery.

TABLE 7

Normal labour pt	13442 3.690%
Pt with LSCS	496 1.375%

Total no of pt with normal labour	Pt with prolapse	% of pt	Pt without pop	% of pt
358646	13528	3.771	345118	96.32
Total no of pt with LSCS	Pt with prolapse	% of pt	Pt without pop	% of pt
39812	496	1.246	39316	98.754

Odds ratio 358646×345118

39872×39316

Discussion

As seen from the table 1 steady rise in no of patients in the hospital is noteworthy due to dedicated services of the hospital and availability of super speciality services at a very reasonable charges. Female patients formed major no of patients due to availability of mother and child welfare services free of cost under various government schemes. Gynaecological surgeries are also done at minimum charges.

Table 2 depicts the ratio of total no of patients having prolapse to total no of female patients coming to Dhiraj hospital. Steady decline in the no of prolapse patients is eye catching. Declining

percentage of POP patients in spite of increasing no of female patients is also evident from the table. Table 4 reveals the detailed obstetric history of the patients having prolapse. It clearly reveals the association of higher incidence of prolapse with the increasing parity. As is evident the incidence of prolapse is less in patients having caesarean delivery. Many patients suffering prolapse with history of LSCS had prolonged obstructed labour before being taken for LSCS.

Table 5 shows the mode of delivery of the patients who had hospital delivery. Remarkable no of patients had intervention in form of either forceps application or ventouse extraction. This carries

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significance as these procedures impose significant stretch on the pelvic floor.

Table 6 shows that prolapse that occurred following vaginal delivery were prone to vault prolapse even after VH WITH AP REPAIR suggesting residual defect in the pelvic floor strength.

Uterine wound healing is a complex process regulated by a cascade of biochemical events endothelial cells, neutrophils, monocytes, fibroblasts as well as myoSP are actively involved In the healing process. Lack of basic fibroblast growth factor is associated with reduced collagen deposition in the wound site producing thicker scabs. Excessive fibrosis in the uterine scar will result in strong scar imparting strength to the anterior uterine wall. Fibrosed scar in the anterior wall will also make it shorter promoting anteversion of the uterus. As we all know anteverted uterus resists descent and prolapse of uterus.

Pregnancy and childbirth are responsible for pelvic floor weakness. Prolonged obstructed labour puts excessive stretch on the pelvic floor making it weak. Higher parity also is an important factor that imparts weakness to the pelvic floor.

Conclusion

From the above study it can be concluded that pelvic floor weakness is strongly associated with vaginal deliveries with higher parity, prolonged labour and instrumental deliveries. Incidence of prolapse in patients with previous LSCS IS REMARKABKY LOW could be due to the pelvic floor being spared from the strain of labour. ANTEVERSION observed following LSCS and adhesions seen in these patients could also impart some protection against prolapse.

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