

Post caesarean scar defect: a prospective study at Tertiary care hospital Rajasthan

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Abstract

Background: Caesarean section is by far the commonest major operation worldwide. To find out incidence of post caesarean scar defect.

Methods: This was hospital based prospective study conducted in the Department of Obstetrics & Gynaecology, SMS Medical College & Attached Group of Hospitals, Jaipur from 1st May 2019 to 31st May 2020.

Results: Maximum women were in 26 to 30 yrs age group with mean age 27.13 ± 3.15 yrs. Maximum subjects were Hindu (86.00%) and rest were Muslims (14.00%). 30.00% women belonged to rural area and 70% belonged to urban area. Maximum number of subjects were in lower middle class (38.00%). Maximum subjects had education upto high school i.e. 26 (26.00%). Prevalence of niche in our study by TVS was 45.00%.

Conclusion: In our hospital based prospective study the prevalence of niche formation by TVS after caesarean deliveries was 45.00%.

Keywords: Caesarean, TVS, Niche formation.

Introduction

Cesarean section is by far the commonest major operation worldwide.¹ Every year, millions of women undergo this operation. Cesarean delivery is potentially a life-saving procedure for both mother and newborn when some complications come up during pregnancy or labor. However, a large proportion of all cesarean deliveries are performed because of non-obstetric reasons, for example maternal request. The cesarean delivery rate has increased worldwide in recent decades. According to the latest data from 150 countries, rate of cesarean deliveries ranges from 6 to 27.2%.^{2,3} A higher maternal socioeconomic status seems to be associated with a greater likelihood of Cesarean delivery.⁴ The World Health Organization recommends as ideal, a cesarean section (CS) rate of 10-15% of all births.⁵ However, in India as per the data National Family Health Survey 2015-2016 (NFHS-4), the cesarean section rate at population level seems to be 17.2%.

Caesarean scar defect or Isthmocele reflects inadequate healing of the myometrium at the site of Cesarean

incision. It can be defined as a hypoechoic area within the myometrium of the lower uterine segment, reflecting a discontinuation of the myometrium at the site of the uterine scar of a previous cesarean section.^{5,6}

A niche has been described as the indentation of myometrium of at least 2 mm. Large niches are uncommon with reported varying incidence of 11-45% depending on the definition used. A significant niche is defined as involving a depth of at least 50-80% of anterior myometrium or the remaining myometrial thickness less than 2.2 mm when evaluated by transvaginal ultrasound scanning (TVS).⁷

Material & Methods

This prospective observational study was conducted on 100 women who were delivered by caesarean delivery in the Department of Obstetrics and Gynecology, SMS Medical Collage Jaipur. They were recruited either before caesarean delivery in case of elective surgery or with in 3 days after the operation in case of emergency caesarean delivery. Women age more than 18 yrs, Post caesarean section and given consent were include in the study

All participants were provided written informed consent before enrollment. Exclusion criteria were applied. Detailed history, relevant investigations, general examination, details of labor, indication for caesarean section and stage of labor when caesarean section done were noted in the proforma. Current contraceptive use, menstrual cycle status, possible amenorrhea or breastfeeding and BMI were recorded. Six weeks after the caesarean delivery participants were called for follow up and ultrasound examination. Transvaginal ultrasonography was performed by USG machine ALOKA PROSOUND α6. Women not using contraception were examined in follicular phase of menstrual cycle to avoid an eventual early pregnancy.

Otherwise, random phase of menstruation is acceptable. Women who were found pregnant at the time of examination were excluded.

Data so collected was compiled statistical analysis was done. The data were presented as means + standard deviation. For categorical data chi-square test or fisher exact test was used. For comparison of mean data between two groups unpaired 't' test or Mann Whitney U test was used. p-value less than 0.05 was taken as significant.

Observations

Table 1: Distribution of Subjects According to demographic variable

Age Mean ± SD (in yrs)	27.13 ± 3.15
Hindu : Muslim	86:14
Rural : Urban	30:70

The mean age in study group was 27.13± 3.15 yrs. 86 (86.00%) were Hindus and 14 (14.00%) were Muslims. 30 (30.00%) women from rural area and 70 (70.00%) belonged to urban area.

Table 2: Distribution of Subjects According to Socio-economic Status

Socio-economic Status	No.	%
Lower	16	16.00
Upper Lower	32	32.00
Lower Middle	38	38.00
Upper Middle	14	14.00
Upper	0	0.00
Total	100	100.00

Subjects were classified according to Modified Kuppusswamy Socio-economic Scale into lower, upper lower, lower middle, upper middle and upper class.

The table shows that maximum number of subjects were 38 (38.00%) in our study group and belonged to lower-middle socio-economic status.

No patient belonged to upper class although there were 14 patients from upper middle class.

16 patients came from lower socio-economic class and 32 came from upper lower class as categorised according to Modified Kuppusswamy Scale.

Table 3: Distribution of Subjects According to Literacy Status

Literacy Status	No.	%
Illiterate	11	11.00
Primary School	12	12.00
Middle School	21	21.00
High School	26	26.00
Intermediate	18	18.00
Graduate	12	12.00
Postgraduate	0	0.00
Total	100	100.00

We distributed subjects according to literacy status into 7 groups : Illiterate, primary school, middle school, high school, intermediate, graduate and postgraduate.

Only 12 patients studied till primary class, 21 patients were middle school dropouts and maximum 26 patients were high school dropouts.

18 patients qualified till intermediate class. 12 patients were graduated whereas no patient had a postgraduation degree.

Table 4: Distribution of Subjects According to Development of Niche

Development of Niche	No.	%
Yes	45	45.00
No	55	55.00
Total	100	100.00

This table shows that out of the total of 100 women who underwent TVS for diagnosis of niche, 45 (45%) women were diagnosed with presence of niche and 55 (55%) women had no niche. Hence the prevalence of niche was 45% in TVS.

Discussion

Bij de Vaate AJ et al (2011) recruited participants up to nine months after CD and performed the TVS examinations 6–12 months after CD. They reported prevalence rate 24.0% with TVS in their prospective study.⁷ In another prospective trial by the same study group, a clearly higher prevalence was found 49.6% with TVUS (Bij de Vaate AJ et al, 2014)⁸. This difference may be explained by the much earlier time point of the examinations (6–12 weeks after CD), as the wound-healing process may still have been on-going (Dicle O et al, 1997⁹; Roberge S et al, 2012¹⁰). However, they later conducted a small proof-of-concept study in which the prevalence of isthmocele remained unchanged when scanned by means of TVUS at two months and at one year after CD (F van der Voet LL et al, 2017)¹¹. So we decided to perform the examinations six week after CD because 6 week is usual time for follow up of CD so it was easy to call them for TVUS. For these reasons, we chose a particular time point for scans. Definition also change prevalence rate so another factor varying in previous studies is the definition of isthmocele. Often, any visible indentation, however small, has been regarded as an isthmocele (Ofili-Yebovi D et al, 2008¹²; Osser OV et al, 2009¹³, 2010¹⁴). We adopted a definition of niche that at least 2.0 mm-deep anechoic structure, which is also a recommended definition in the European Guideline of Isthmocele Evaluation (Jordans IPM et al, 2018)²⁶.

Conclusion

In our hospital based prospective study the prevalence of niche formation by TVS after caesarean deliveries was 45.00%.

References

1. Mathai M, Hofmeyr GJ, Mathai NE. Abdominal surgical incisions for caesarean section. *Cochrane Database Syst Rev*. 2013;(5):CD004453.
2. Indraccolo U, Scutiero G, Matteo M, Indraccolo SR, Greco P. Cesarean section on maternal request: should it be formally prohibited in Italy? *Ann Ist Super Sanita*. 2015;51(02):162–166 Doi: 10.4415/ANN_15_02_15
3. Betrán AP, Ye J, Moller AB, Zhang J, Gülmezoglu AM, Torloni MR. The increasing trend in caesarean section rates: global, regional and national estimates: 1990–2014. *PLoS One* 2016;11(02):e0148343 Doi: 10.1371/journal.pone.0148343
4. Alonso BD, Silva FMBD, Latorre MDRDO, Diniz CSG, Bick D. Caesarean birth rates in public and privately funded hospitals: a cross-sectional study. *Rev Saude Publica*. 2017;51:101 Doi: 10.11606/S1518-8787.2017051007054
5. World Health Organization Human Reproduction Programme, 10 April 2015. WHO statement on caesarean section rates. *Reprod Health Matters*. 2015;23(45):149-50.
6. Zia S, Rafique M. Intra-operative complications increase with successive number of cesarean sections: Myth or fact? *Obstet Gynecol Sci*. 2014;57(3):187–192.
7. Bij de Vaate AJ, Brolmann HA, van der Voet LF, van der Slikke JW, Veersema S, Huirne JA. Ultrasound evaluation of the Cesarean scar: relation between a niche and postmenstrual spotting. *Ultrasound Obstet Gynecol*. 2011;37(1):93-99.
8. Bij de Vaate AJM, van der Voet LF, Naji O, Witmer M, Veersema S, Brolmann HAM, et al. Prevalence, potential risk factors for development and symptoms related to the presence of uterine niches following Cesarean section: systematic review. *Ultrasound Obstet Gynecol*. 2014;43: 372–82
9. Dicle O, Küçükler C, Pirnar T, Erata Y & Posaci C. Magnetic resonance imaging evaluation of incision healing after cesarean sections. *European Radiology*. 1997;7(1): 31–34. <https://doi.org/10.1007/s003300050103>
10. Roberge S, Boutin A, Chaillet N, Moore L, Jastrow N, Demers S, & Bujold E. Systematic Review of Cesarean Scar Assessment in the Nonpregnant State: Imaging Techniques and Uterine Scar Defect. *Amer J Perinatol*. 2012;29(06): 465–472. <https://doi.org/10.1055/s-0032-1304829>
11. F Van der Voet LL, Bij de Vaate AMJ, Heymans MW, Brolmann HAM, Veersema S, Huirne JAF. Prognostic Factors for Niche Development in the Uterine Cesarean Section Scar. *Eur J Obstet Gynecol Reprod Biol*. 2017 Jun;213:31-32. doi: 10.1016/j.ejogrb.2017.03.039
12. Ofili-Yebovi D, Ben-Nagi J, Sawyer E, Yazbek J, Lee C, Gonzalez J, et al. Deficient lower-segment cesarean section scars: prevalence and

- risk factors. *Ultrasound Obstet Gynecol.* 2008;31:72–7.
13. Osser OV, Jokubkiene L, Valentin L. High prevalence of defects in Cesarean section scars at transvaginal ultrasound examination. *Ultrasound Obstet Gynecol.* 2009;34:90–7.
14. Vikhareva OsserO,ValentinL. Risk factors for incomplete healing of the uterine incision after caesarean section. *BJOG.* 2010Aug;117(9):1119-1126.
doi:10.1111/j.1471-0528.2010.02631.x.
15. Jordans IPM, de Leeuw R, Stegwee SI, Amso NN, Barri-Soldevila PN, van den Bosch T, Huirne JAF. A practical guideline for examining a uterine niche using ultrasonography in non-pregnant women: a modified Delphi method amongst European experts. *Ultrasound in Obstetrics & Gynecology.* 2018;53(1).
<https://doi.org/10.1002/uog.19049>