



## EFFECTIVENESS OF GUM CHEWING ON THE POST-OP RECOVERY OF GASTROINTESTINAL FUNCTION AFTER CAESAREAN SECTION

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### ABSTRACT

**Introduction:** Caesarean section (CS) is the most common major surgery in the world and the rates are increasing (Degani and Sikich, 2015)<sup>1</sup>. Postoperative ileus is an impaired condition of gastrointestinal motility defined as the interval from surgery until the passage of flatus or stool and the tolerance of an oral diet that should occur within the fourth postoperative day and complicates up to 20% of caesarean delivery (Vather et al, 2013)<sup>2</sup>. **Aims and Objectives:** To study the effectiveness of Gum Chewing on the post-op recovery of gastrointestinal function after caesarean section. The primary objective is to determine the relationship between gum chewing and recovery of gastro intestinal function after uncomplicated caesarean section. **Materials and Methods:** This prospective study was conducted on 300 patients from the immediate post-operative ward of PMCH who had undergone caesarean section. Written informed consent was obtained from all post caesarean women who participated in the study. They were given one stick of sugarless chewing gum from 4 hours postoperatively for 20 minutes once in every 4 hours till the passage of first flatus. Further management was done according to the hospital protocol. Post caesarean women were followed up to discharge. Time taken for the auscultation of first bowel sound, first flatus, first stools were recorded along with any bloating, nausea, vomiting, eructation or other difficulties. Time taken for the above parameters were compared between the study and control groups and studied for significance. The parameters were analysed and compared with equal number of matched controls. **Results:** The result showed that the mean time until 1st bowel sounds was significantly ( $p=0.0001$ ) lower among Gum chewing ( $10.05 \pm 1.65$ ) group than Controls ( $15.58 \pm 1.50$ ). The mean time until 1st flatus was significantly ( $p=0.0001$ ) lower among Gum chewing ( $17.66 \pm 2.13$ ) group than Controls ( $24.52 \pm 3.83$ ). The mean time until 1st bowel movement was significantly ( $p=0.0001$ ) lower among Gum chewing ( $20.20 \pm 2.54$ ) group than Controls ( $30.11 \pm 3.40$ ). **Conclusion:** The study concluded that chewing gum is associated with early recovery of intestinal function after caesarean section, which may be helpful in reducing postoperative parameters and shorten the length of hospital stay.

**KEYWORDS :** Caesarean section, Chewing gum, Postoperative.

### INTRODUCTION

International health community has considered ideal rate of caesarean section of 10-15%. Average caesarean section rate in India is 12% in public institutions and it is much higher (28%) in private sectors (World health organization, 2015)<sup>3</sup>. Although it can be life saving for the mother and baby when necessary, it has the risk of producing more complications than normal vaginal birth. One of the postoperative complications could be related to the return of bowel motility after the surgery (Deshpande et al, 2017)<sup>4</sup>. Early return of gut motility leads to early starting of oral feeding, early breastfeeding, early ambulation and early discharge from the hospital and decreases overall cost of hospitalisation.

After the surgery, the return of the motility is typically first observed in the small bowel in less than 24 hours, then in the stomach between 24 and 48 hours, and finally in the large bowel after more than 48 hours. Nevertheless, the recovery of the large bowel function is much less predictable when compared to other parts of the gastrointestinal tract, thus clinicians use endpoints such as the passage of stool and flatus as indicators of clinical resolution of ileus (Fraser and Copper, 2004)<sup>5</sup>.

Many methods have been advocated to speed bowel recovery after caesarean delivery such as ambulation, early hydration and chewing gum. Chewing gum acts similar to sham feeding and activates the cephalic vagal pathway which results in both humoral and nervous stimulation of bowel motility. It has been proven to hasten return of gastrointestinal motility in

non-obstetric abdominal surgery (Li et al, 2013)<sup>6</sup>.

### MATERIALS AND METHODS

This prospective study was conducted on 300 patients [150 study group, 150 control group] from the immediate post-operative ward who had undergone caesarean section in the Department of Obstetrics & Gynecology, Pacific Medical College and Hospital, Bedla, Udaipur, during February, 2021 to October 2022. Ethical clearance was obtained from the Institutional Ethical Committee.

#### Inclusion Criteria:

- Women undergoing caesarean section at PMCH
- Willing to participate in the study.

#### Exclusion Criteria:

- Caesarean hysterectomy
- Prolonged operating time
- Gestational or overt diabetics, Hypertension & Hypothyroidism
- General anaesthesia
- Women with previous dental filling
- Unwilling to participate in the study.
- Any contraindications for enteral feeding.

#### Procedure

Written informed consent was obtained from all post caesarean women who participated in the study. They were given one stick of sugarless chewing gum from 4 hours postoperatively for 20 minutes once in every 4 hours till the

passage of first flatus. Further management was done according to the hospital protocol. Post caesarean women were followed up to discharge. Time taken for the auscultation of first bowel sound, first flatus, first stools were recorded along with any bloating, nausea, vomiting, eructation or other difficulties. Time taken for the above parameters were compared between the study and control groups and studied for significance. The parameters were analysed and compared with equal number of matched controls.

#### Statistical analysis:

The results are presented in frequencies, percentages and mean $\pm$ SD. The Chi-square test was used to compare categorical variables. The Unpaired t-test was used to compare continuous variables. The p-value $<$ 0.05 was considered significant. All the analysis was carried out on SPSS 16.0 version (Chicago, Inc., USA).

#### RESULTS AND DISCUSSION:

Childbirth is a memorable part in every woman's life. Each labour experience is unique and calls for a celebration (Matros et al, 2006)<sup>7</sup>. Several techniques are used to perform child delivery in maternity care. Commonly, the delivery procedures are addressed as vaginal deliveries and caesarean sections. Caesarean section (CS), is a surgical procedure in which one or more incisions are made through a mother's abdomen and uterus to deliver one or more babies (Pereira et al, 2015)<sup>8</sup>.

Although it can be life saving for the mother and baby when necessary, it has the risk of producing more complications than normal vaginal birth. One of the postoperative complications could be related to the return of bowel motility after the surgery (Deshpande et al, 2017)<sup>4</sup>. Early return of gut motility leads to early starting of oral feeding, early breastfeeding, early ambulation and early discharge from the hospital and decreases overall cost of hospitalisation.

Chewing gum has recently been used to stimulate the acceleration of gut function after abdominal, obstetrics and gynecologic surgeries, leading to stimulation of bowel motility. This response occurs after chewing to prepare the gut for food intake when actually normal food is eaten, the intestine might not be able to handle it in the right away. Chewing gum use after caesarean section has been associated with various improved outcomes, including early passage of flatus, early bowel sounds and shorter lengths of hospitalization. In addition, there is no evidence of any side effects caused by gum chewing in literature (Mansour et al, 2016)<sup>9</sup>.

Sham feeding which is process of chewing food, but spitting it out before swallowing has been reported to stimulate motility of human duodenum, stomach and rectosigmoid. The researchers demonstrated that sham feeding increased the serum concentration of peptide hormone gastrin, the neuropeptide, neurotensin, pancreatic polypeptide. Besides, sham feeding also increases duodenal alkaline secretions. Gum chewing mimics food intake and is considered as a kind of sham feeding (Safdari et al, 2011)<sup>10</sup>

The present study was conducted in the Department of Obstetrics & Gynecology, Udaipur City, Rajasthan with the objective to study the effectiveness of Gum Chewing on the post-op recovery of gastrointestinal function after caesarean section. A total of 150 gum chewing (Cases) and 150 controls were included in the study. The following are the major findings of this study:

1. About half of Gum chewing (51.3%) and 56% of Controls were between 20- 25 years of age. However, 37.3% of Gum chewing and 35.3% of Controls were between 26-30 years of age. There was no significant (p $>$ 0.05) difference in

age between the groups showing comparability of the groups in terms of age.

2. More than one third of both Gum chewing (49.3%) and Controls (46.7%) had primi obstetric history. However, 50.7% of Gum chewing and 53.3% of Controls had multi obstetric history. There was no significant (p $>$ 0.05) difference in obstetric history between the groups.
3. Majority of both Gum chewing (92.7%) and Controls (94.7%) had normal BMI. However, 7.3% of Gum chewing and 5.3% of Controls were overweight. There was no significant (p $>$ 0.05) difference in BMI between the groups.
4. The mean operation time was insignificantly (p $>$ 0.05) lower among Gum chewing (39.36 $\pm$ 5.59 minutes) group than Controls (39.78 $\pm$ 2.01 minutes).
5. The mean time until 1st bowel sounds was significantly (p=0.0001) lower among Gum chewing (10.05 $\pm$ 1.65) group than Controls (15.58 $\pm$ 1.50).
6. The mean time until 1st flatus was significantly (p=0.0001) lower among Gum chewing (17.66 $\pm$ 2.13) group than Controls (24.52 $\pm$ 3.83).
7. The mean time until 1st bowel movement was significantly (p=0.0001) lower among Gum chewing (20.20 $\pm$ 2.54) group than Controls (30.11 $\pm$ 3.40).
8. The previous abdominal treatment was present in 8.7% patients of Gum chewing and in 6% of Controls. There was no significant (p $>$ 0.05) difference in previous abdominal treatment between the groups.
9. The Vomiting/Bloating was present in 6% patients of Gum chewing and in 2.7% of Controls. There was no significant (p $>$ 0.05) difference in Vomiting/Bloating between the groups.

#### CONCLUSION

The study concluded that chewing gum is associated with early recovery of intestinal function after caesarean section, which may be helpful in reducing postoperative parameters and shorten the length of hospital stay. Gum chewing offers a safe, simple and inexpensive way for hastening the recovery of intestinal function, which is worthy of promotion for clinical use. Patients need to be counselled and supervised during its use to improve compliance.

**Conflict of Interest:** None.

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