

## A RANDOMIZED INTERVENTIONAL STUDY ON EFFECT OF CHEWING GUM ON DURATION OF HOSPITAL STAY FOLLOWING ABDOMINAL SURGERIES IN THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY, SMS MEDICAL COLLEGE, JAIPUR

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### Abstract

**Background:** Postoperative gastrointestinal dysfunction, especially postoperative ileus, is a major contributing factor in discomfort and prolonged hospital stay after abdominal surgery. It can cause the accumulation of secretions and gas, resulting in nausea, vomiting, abdominal distension and pain<sup>7</sup>. This study was conducted with an aim to analyze the clinical outcome of effect of chewing gum mainly to avoid post-operative gastrointestinal dysfunction which affects the duration of hospital stay post-operative.

**Methods:** The present Randomized interventional study is done in the Department of Obstetrics and Gynecology, SMS Medical College and Hospital, Jaipur with the aim of assessing the effect of chewing gum on duration of hospital stay after abdominal surgery in 40 Cases and 40 Controls. The cases were given chewing gum for duration of 15 minutes at 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> hour of surgery. Bowel sound were auscultated at 3<sup>rd</sup>, 5<sup>th</sup> and 7<sup>th</sup> hour of surgery and outcomes were compared with control group. Control group were given only standard post-operative care.

**Results:** Mean duration of hospital stay in cases is 4.39±0.86 days and 6.35±0.94 days in controls group, median time is 4.1 days in cases and 6.3 days in controls, minimum and maximum time is respectively 2.8 days and 6.5 days in cases and 4.7 days and 9.5 days in controls, there is statistically significant difference between the groups (P<0.01), i.e., Control group patients has lengthier hospital stay when compared to Cases group who were given Chewing gum post operatively.

**Conclusion:** Chewing Gum a form of Sham feeding is a virtual diet can be added as a routine post operative measure without any concern on early post-operative feeding. Thus using chewing gum post-operatively improves outcomes like early ambulation, early discharge and decreases overall cost of hospitalization.. and is a low-cost, safe and effective measure to reduce ileus associated complications.

**Keywords:** Chewing Gum, Hospital Stay, Post-operative Ileus

### Introduction

Gastrointestinal tract dysfunction is the most common complication that occur after abdominal surgeries known to cause gastrointestinal symptoms such as gas, bloating, and abdominal cramps. Early initiation of intestinal motility after abdominal surgery is highlighted in the “Enhanced Recovery After Surgery” ERAS Protocol, also known as the multidisciplinary approach<sup>1,2</sup>. In this protocol, particular attention has been given to early feeding regimes i.e., Sham Feeding regimes which is being investigated as a means to stimulate bowel motility and confer an advantage while actually minimising harm caused by early oral feeding especially in patients who do not tolerate the same. Sham feeding is the concept where the patient sees the food, smells food but is not given food to swallow e.g., Chewing Gum. In our study we have used sugar free chewing gum to study its effect on peristalsis. The sugar substitutes in the sugar free gum (e.g., sorbitol and xylitol) may stimulate bowel function and have a non-stimulant laxative effect. Chewing Gum stimulates the digestive cephalic phase by imitating eating and is considered a Virtual Diet. The pathophysiological mechanism for the enhanced recovery bowel motility is due to activation of the cephalic-vagal pathway which is

stimulating intestinal myoelectric activity in an attempt to counteract activation of the gastrointestinal  $\mu$  opioid receptors. This response leads to both humoral and nervous stimulation of bowel motility. Chewing gum use post-operatively, has been associated with various improved outcomes, including early passage of flatus, early bowel sounds and shorter lengths of hospitalization. Given this, gum chewing might be a safe and inexpensive way to provide the benefits of early stimulation of gastrointestinal tract. Hence early return of bowel gut motility leads to early starting of oral feeding, early breast feeding following caesarean section, early ambulation and early discharge from the hospital and decreases overall cost of hospitalization.<sup>1-3</sup> Thus, the present Randomized interventional study is aimed at assessing the effect of chewing gum on hospital stay after abdominal surgery.

### Material And Methods

- **Study Design:** Randomized Controlled Study
- **Study Type:** Interventional study
- **Place of Study:** Department of Obstetrics and Gynecology, SMS Medical College and Hospital, Jaipur.

- **Study Period:** March 2020 onwards till desired sample size is reached or one year whichever is earlier plus two months for data analysis and compilation of thesis.

**Inclusion Criteria:**

- Age  $\geq 18$  years to  $< 60$  years.
- Underwent abdominal surgeries both obstetrics and gynecology (elective and emergency)
- Underwent Surgery under Spinal & General anesthesia
- Willing to participate, giving Written and Informed consent.

**Exclusion Criteria:**

- H/O of tooth or jaw surgery, which would affect the chewing movement
- H/o GI disorder or any previous GI surgery
- H/o Medical (Muscular and neurological) disorders
- Smoker or H/o drug addiction.

- Fluid and electrolyte imbalance.
- Those postoperative patients who need long-term fasting or total parenteral nutrition.
- Those patients who are participating in any other study.

**Results**

The present Randomized interventional study was done in the Department of Obstetrics and Gynecology, SMS Medical College and Hospital, Jaipur with the aim of assessing the effect of chewing gum on recovery of gastrointestinal tract function after abdominal surgery, 40 patients were given Chewing gum after surgery are grouped as Cases and 40 patients who were given only standard post-operative care were Grouped as Controls and obtained following results.

**Table 1: Socio-demographic profile**

	Case	Control	P-value
Age	31.17 $\pm$ 7.21 years	30.82 $\pm$ 7.74 years	0.785
BMI	24.53 $\pm$ 4.24 Kg/m <sup>2</sup>	23.93 $\pm$ 4.24 Kg/m <sup>2</sup>	0.362

The both groups were comparable

**Table 2: Mean, median, minimum and maximum values of duration of hospital stay in both groups**

	Group	N	Mean	Std. Deviation	Std. Error Mean					
Length of hospital stay (Days)	Cases	40	4.39	0.86	0.14	4.1	2.8	6.5	P<0.01	
	Controls	40	6.35	0.94	0.15	6.3	4.7	9.5		

Mean duration of hospital stay among cases was 4.39 $\pm$ 0.86 days and was 6.35 $\pm$ 0.94 days among controls group, median time was 4.1 days among cases and was 6.3 days in controls. Minimum and maximum time for duration of hospital stay was respectively 2.8 days and 6.5 days among cases and 4.7 days and 9.5 days among controls, there was statistically significant difference between the groups (P<0.01), i.e., Control group patients has lengthier hospital stay when compared to Cases group who were given Chewing gum post operatively.

**Discussion**

In our study, mean duration of hospital stay in cases is 4.39 $\pm$ 0.86 days and 6.35 $\pm$ 0.94 days in controls group, median time is 4.1 days in cases and 6.3 days in controls, minimum and maximum time is respectively 2.8 days and 6.5 days in cases and 4.7 days and 9.5 days in controls, there is statistically significant difference between the groups (P<0.01), i.e., Control group patients has lengthier hospital stay when compared to Cases group who were given Chewing gum post operatively.

Ngowe MN et al.,<sup>4</sup> conducted a prospective randomized trial in 2010 to study the effectiveness of chewing bubble gum on reduction of post-operative ileus after open appendectomy in a University teaching Hospital and 46

patients were divided into chewing gum group (23 patients ) and control group (23 patients ) and the chew group patients chewed sugarless gum for 30 minutes thrice daily until resumption of intestinal tract transit and timing of first flatus, first bowel movements, hospital duration and complications are noted in both groups. The result shows that first passage of flatus, bowel movements, hospital stay in the control and experimental group: 3.0 days vs 2.2 days; 3.3 days vs 2.3 days; 6,7 days vs 4.9 days respectively.

Shang H et al., (2010)<sup>5</sup> conducted a prospective, randomized, controlled trial to study the effectiveness of gum chewing on post-operative ileus after caesarean section at, Shanghai, China. 388 patients were randomly assigned to a gum chewing group (193 patients) or control group (195 patients) patients in the gum-chewing group chewed gum three times for a half an hour per day from the first hour of immediate post-operative period and until the first defecation or discharge. Groups were comparable in age, weight, height, weeks of gestation, duration of surgery, and type of anaesthesia. The results shows that bowel sounds, first passage of flatus in the control and experimental group: 23.3 hours vs 18.2 hours; 39.9 hours vs 34.4 hours respectively.

## Conclusion

This study was conducted over 80 patients, 40 were cases who were given chewing gum chewing three times a day post operatively and 40 were controls who were not fed with chewing gum selected randomly. Chewing gum can be added as a routine post-operative measure without any concern on early post-operative feeding and is a low-cost, safe, effective measurement to reduce ileus associated complications which affects the duration of hospital stay post-operative.

## References

1. Ledari FM, Barat S, Delavar MA, Banihosini SZ, Khafri S. Chewing Sugar-Free Gum Reduces Ileus After Cesarean Section in Nulliparous Women: A Randomized Clinical Trial. *Iran Red Crescent Med J.* 2013;15(4):330–334. doi: 10.5812/ircmj.6458
2. Jakkaew B, Charoenkwan K. Effects of gum chewing on recovery of bowel function following cesarean section: A randomized controlled trial. *Arch Gynecol Obstet.* 2013;288:255-260. doi: 10.1007/s00404-013-2727
3. Zhu Y-P, Wang W-J, Zhang S-L, Dai B, Ye D-W. Effects of gum chewing on postoperative bowel motility after cesarean section: a meta-analysis of randomised controlled trials. *BJOG.* 2014;121:787–792. doi: 10.1111/1471-0528.12662
4. Ngowe MN, Eyenga VC, Kengne BH, Bahebeck J, Sosso AM. Chewing gum reduces postoperative ileus after open appendectomy. *Acta Chirurgica Belgica.* 2010 Jan 1;110(2):195-9.
5. Shang H, Yang Y, Tong X, Zhang L, Fang A, Hong L. Gum chewing slightly enhances early recovery from postoperative ileus after cesarean section: results of a prospective, randomized, controlled trial. *American journal of perinatology.* 2010 May;27(05):387-91.
6. aşdemir N, Şenol-Çelik S. Experiences of patients toward abdominal distension after surgical intervention. *Ege Üniversitesi Hemşirelik Yüksek Okulu Dergisi.* 2010;26(3):23–31
7. Kehlet H, Wilmore DW. Evidence-Based Surgical Care and the Evolution of Fast-Track Surgery. *Ann Surg.* 2008;248(2):189-198 doi: 10.1097/SLA.0b013e31817f2c1a.
8. Gustafsson UO, Scott MJ, Schwenk W, Demartines N, Roulin D, and Francis N, et al. Guidelines for Perioperative Care in Elective Colonic Surgery: Enhanced Recovery After Surgery (ERAS) Society Recommendations. *World J Surg.* 2013; 37:259–284. doi:10.1007/s00268-012-1772-0.