

**Original Article****Dysfunctional Uterine Bleeding: Association with Bilateral Tubal Ligation**

Killol N Desai\*, Vidya Satapara\*\*, Menka Shah\*\*\*

\* Assistant Professor, Department of Pathology, C.U. Shah Medical College, Surendranagar, Gujarat, India.

\*\*Tutor, Department of Anatomy, C.U. Shah Medical College, Surendranagar, Gujarat, India.

\*\*\*Professor &amp; Head, Department of Pathology, Pramukh Swami Medical College, Karamsad, Anand, Gujarat, India

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**ABSTRACT**

**Background:** Abnormal uterine bleeding is one of the most frequent gynecological problems. DUB can occur at any time between menarche and menopause in ovulatory or anovulatory cycles. An increase risk of developing menstrual abnormalities following tubal ligation has been a subject of debate for decades.

**Aims:** To find an association between Dysfunctional uterine bleeding (DUB) and prior Bilateral tubal ligation (BTL).

**Material and Methods:** Cross sectional study done at Pramukh Swami Medical College, Shree Krishna Hospital, Karamsad from December 2011 to December 2012. 150 patients between the ages of 30 to 50 with abnormal uterine bleeding (AUB) were studied. Exclusion criteria included intrauterine device (IUD), evidence of pregnancy, leiomyoma or ovarian pathology on sonography, uterine size of greater than 10 cm, medical disorders and hormonal therapy. All patients were worked up for underlying cause of AUB, assessed for BTL and divided in two groups. Group A of 80 patients with previous history of BTL and Group B of 70 patients had without previous history of BTL.

**Statistical test used:** Percentage, Chi-square test

Statistical analysis was performed using the IBM SPSS (Statistical package for the Social Sciences v15.0) and Microsoft Excel 2007 software.

**Results:** In group A, 67 patients (83.7%) had DUB as compared to 26 (37.1%) in group B and this difference is statistically significant ( $p < 0.05$ )

**Conclusion:** In women undergoing diagnostic work up for AUB the likelihood of DUB being the underlying cause is greater if they have prior BTL.

**Keywords:** Dysfunctional uterine bleeding, Bilateral Tubal ligation, Abnormal uterine bleeding

**INTRODUCTION**

Abnormal uterine bleeding is one of the most frequent gynecologic problems. The diagnosis of dysfunctional uterine bleeding (DUB) is made in patients in whom there is no underlying physical lesion [1] to explain the symptoms. DUB can occur at any time between menarche and menopause in ovulatory or anovulatory cycles. Tubal ligation is the permanent method of family planning most commonly used [2]. An increase risk of developing menstrual

abnormalities following tubal ligation have been a subject of debate for decades [3]. Many authors have investigated the sequel of female sterilization [4]. Increased premenstrual distress, heavier and more prolonged menstrual bleeding, and increased dysmenorrhea have been reported in many studies [5]. However, many recent investigators have not found significant changes, except in women who undergo sterilization between 20 and 29 years of age [6]. The aim of this study was to compare the occurrence of DUB in women with or without a prior history of tubal ligation.

## MATERIAL & METHODS

This observational cross sectional study has been carried out on 150 women at Pramukh Swami Medical College, Shree Krishna Hospital, Karamsad from December 2011 to December 2012 to determine the association of tubal ligation with DUB.

All women aged 30 to 50 years presenting with menstrual irregularity were selected. Those who had intrauterine device (IUD), evidence of pregnancy, leiomyoma or ovarian pathology on sonography, uterine size of greater than 10 cm, suffered from medical disorders or on hormonal therapy were excluded from the study. Inclusion criteria included menstrual interval shorter than 21 days (polymenorrhea), duration of flow more than 8 days (hypermenorrhea), patients self described history of heavy blood loss whether regular (menorrhagia) or irregular (menometrorrhagia). All patients were assessed for tubal ligation. All had their haemoglobin, random blood sugar estimation and pelvic sonography done. A pre-designed study proforma was filled on each case. All patients underwent diagnostic curettage and histopathology report of endometrium obtained. Outcome measures were DUB (proliferative-fig.1 or secretory phase endometrium-fig.2) or other pathologies (endometrial hyperplasia, endometrial carcinoma or small polyps not detectable on pelvic sonography, etc.). Association was tested by using  $\chi^2$  test.

## RESULTS

A total of 150 consecutive patients who met inclusion criteria were enrolled in the study and were divided into the two groups.

Among the study population, age, parity, duration of menstrual abnormality, type of menstrual abnormality and histological finding were the variables analyzed. 45.6% patients were 40 years of age and 85.5% of them were para 2 and above, 86% patients had menstrual abnormality of less than 3 years duration, 57.3% were suffering from menorrhagia and 34.4% had histology report of proliferative endometrium.

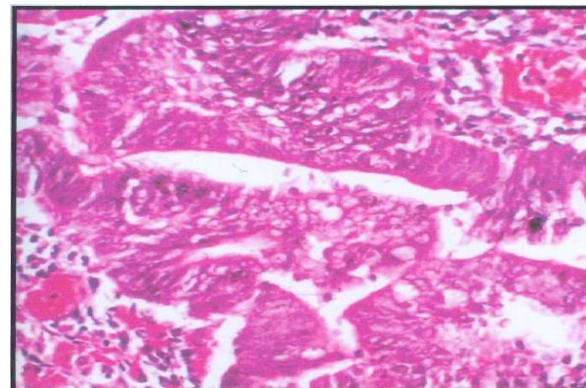
Group A comprised of patients with previous BTL (n=80, 53.3%) while group B comprised those without BTL (n=70, 46.7%). Among the group A, 65 patients had laparoscopic BTL, 11 were ligated at the time of caesarean section and only 4 had Pomeroy's method

of sterilization. Mean period elapsed since BTL was 10-13 years followed by 7-9 years.

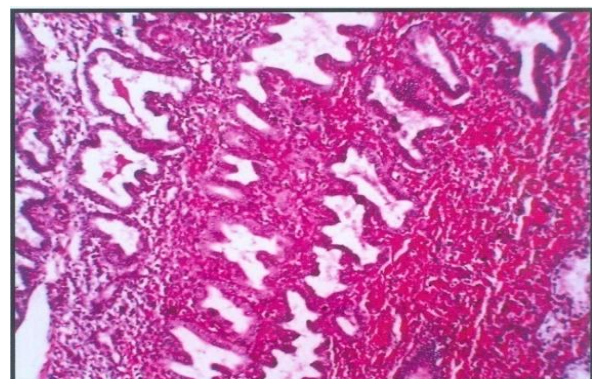
**Table 1: Association of DUB with BTL**

		BTL (Bilateral Tubal Ligation)		Total (n=150)	p value
		Group A	Group B		
DUB	Yes	67	26	93	<0.05
	No	13	44	57	

**Figure 1: Microphotograph of Proliferative Endometrium (H&E stain 40x view)**



**Figure 2: Microphotograph of Secretor Endometrium (H&E stain 10x view)**



In group A, 67 patients (83.7%) had DUB as compared to 26 (37.1%) in group B and this difference is statistically significant ( $p < 0.05$ ) Table 1. Total cases of DUB were 62% (n=93).

The most common histological findings in group A & B were both proliferative endometrium 44% & 25% and secretory endometrium 37% & 20% respectively.

## DISCUSSION

Voluntary surgical contraception is practiced widely in developing countries like India. More than 65% of women undergoing bilateral tubal ligation (BTL) are above 30 years of age [2]. Although sterilization procedures have been hypothesized to cause post-tubal ligation syndrome [3,4], the evidence does not favour the existence of any such syndrome [5,6]. Menstrual abnormalities are as common among sterilized as in non-sterilized women but still sterilized women are more likely than non-sterilized women to undergo hysterectomy [7]. Moreover the risk of subsequent hospitalization for menstrual disorders also appears to increase in sterilized women [8].

It is also observed that sterilization at younger ages seem to have more effect on menstrual irregularities and risk of hysterectomy than that at older ages [4].

In this study it is found that in women undergoing diagnostic workup for abnormal uterine bleeding, the likelihood of DUB being the underlying cause is more in sterilized than in non-sterilized women. The exact biological explanation for such an observation is obscured by poorly defined underlying lesion in DUB. Disturbances of hypothalamic-pituitary-ovarian axis activity and hormone imbalance are often implicated in the etiology of DUB[9], but studies show no significant change in ovarian hormone levels before and after tubal sterilization [10]. However there is a significant elevation of FSH (follicle stimulating hormone) levels after ligation [11]. Moreover these patients may acquire an ovarian polycystic appearance and increased ovarian pulsatility index post ligation [12]. Higher levels of estrogen and progesterone receptors expression are found in endometria of patients with DUB [13] but whether this expression is even higher in sterilized women is still unclear.

Other morphological abnormalities like vascular alterations, impaired vasoconstriction, fibrinolysis [14] and disturbances of angiogenic process[15] are also yet to be studied in this context. A prospective study on a larger number of cases may substantiate the hypothesis.

## CONCLUSION

Women who undergo diagnostic workup for abnormal uterine bleeding between 30 to 50 years of age are more likely to suffer from DUB if they have prior BTL irrespective of type of sterilization method and period since ligation.

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**Corresponding Author:**

Dr. Killol N. Desai  
Plot no: 592/1, Sector 3/c  
Gandhinagar: 382006  
Mobile no: 09428050253  
E-mail: drkilloldesai@gmail.com

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