

## PREOPERATIVE PRESENCE OF CLUE CELLS AS A PREDICTOR OF POST OPERATIVE INFECTIOUS MORBIDITY

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### SUMMARY

92 patients who were subjected to abdominal hysterectomy for various pathologies over a period of eighteen months were prospectively followed up. Preoperatively their posterior vaginal fornicial discharge was studied for presence of clue cells - an indicator of bacterial vaginosis. It was found that amongst those subjects who registered a presence of clue cells 80.64% had post operative infectious morbidity. On the other hand when absent, only 18.03% had such a morbidity. This was irrespective of the pathology for which the surgery was done. There was no correlation between preoperative presence of clue cells and post operative urinary tract infection.

### INTRODUCTION

Bacterial vaginosis takes the giant share of the causes of normal vaginal discharge. 40% to 50% of all cases of leucorrhoea could be due to this condition (Biswas M. 1993). Following Thomson's (1988) modification of Amsel's (1983) criteria, this condition is now well established and uniformly diagnosable.

Presence of clue cells in such a discharge correlates excellently with bacterial vaginosis (Thomsan J.L. 1990). These are actually vaginal epithelial cells whose borders are obscured by the attached bacteria. They can be sensitively picked up by experienced eyes.

It is now evident that presence of clue cell's diagnoses bacterial vaginosis - which is widespread infectious condition. It is therefore logical to study the possibility of predicting post operative infectious

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morbidity if preoperatively clue cells were demonstrable. This is what is precisely studied in this series.

### **SUBJECTS AND METHODS**

This is a prospective study carried out in Unit III of the dept. of Obstet. & Gynec., Medical College and S.S.G. Hospital, Baroda from 1st Dec. 1993 to 15th May 1995. Patients to be subjected to abdominal hysterectomy were included in this study. Post menopausal patients, patients with malignancy, presence of bleeding per vaginum on selection and those in whom vaginal hysterectomy was to be done were excluded from the study.

In those patients who were included, after a careful history and examination, smear of the discharge from posterior vaginal fornix was prepared on four slides. One slide was allowed to dry in air. This was rehydrated later on with 0.9% saline and examined under a 400 X biocular teaching microscope, for clue cells. Two slides from the remaining three were immediately fixed in cytofix solution on collection and subjected to Papanicolaou staining and examined for clue cells. The fourth slide was subjected to Gram staining after drying in air.

Following hysterectomy, the specimen was sent for histopathological examination and a careful watch and noting of post operative infectious morbidity in the patient was done. Abdominal wound infection, vaginal cuff infection and urinary tract infection were carefully looked for clinically as well as microbiologically.

Perioperative broad spectrum antibiotics were given to all patients for 7 days. Pfannensteil was the abdominal incision of choice whose stiches were removed

on 8th day. Subcuticular stiches were not taken in cases of the study for reasons of uniformity.

All subjects were again subjected to a similar examination - clinical as well as microbiological, on follow up after 15 days of discharging her from the hospital.

### **RESULTS**

In all 105 patients were included in this study. Of these, 92 could be followed up right up to the follow up visit after discharge. 13 were lost to follow up and though data regarding immediate post operative condition were available, they were not included in this study for analysis of results. (Table I)

Interestingly, when clue cells were present, 80.64% patients developed abdominal wound &/or vaginal cuff infection. On the other hand, when clue cells were absent 81.9% patients did not develop infection.

However there was no association between clue cells, pathology for which the surgery was done and post operative infection. (Table II)

Results of this table require to be evaluated cautiously. Values expressed in percentage, statistical indices and clinical situation all have to be carefully borne in mind before any conclusion is drawn from this table.

On basis of results expressed in the table, wherein of the 31 patients who had clue cells present, 11 had them postoperatively as well and of these 8 had wound &/or cuff infection on follow up. Interestingly however, of the 61 who had no clue cells preoperatively, 4 showed presence of clue cells postoperatively and all 4 registered infection on follow up. However, when statistical indices were used to draw

**TABLE I**  
**PREOPERATIVE CLUE CELLS AND POST OPERATIVE WOUND AND CUFF INFECTION.**

Preoperative Clue cells.	Present		Cuff &/or wound Infection Absent		Total
	No.	%	No.	%	
Present	25	80.64	06	19.35	31
Absent	11	18.03	50	81.96	61

(n = 92) (P < 0.001)

**TABLE II**  
**PREOPERATIVE CLUE CELLS AND INFECTION ON FOLLOW UP AFTER SURGERY**

Preoperative Clue cells	Postoperative Clue cells				Infection on follow up				Total
	Present		Absent		Present		Absent		
	No.	%	No.	%	No.	%	No.	%	
Present	11	35.48	20	64.51	08	35.48	03	27.27	31
Absent	04	6.55	57	98.94	04	100.00	00	00.00	61

P > 0.05 : Not significant

**TABLE III**  
**PREOPERATIVE CLUE CELLS AND POST OPERATIVE U.T.I.**

Preoperative Clue Cells	Post operative U.T.I.		Total
	No.	%	
Present	04	12.9	31
Absent	05	8.19	61

P > 0.05 : Not significant

valid conclusions, probability value was found to be unacceptably high and therefore these differences were concluded as insignificant. Also, in the situation where only 4 cases were present we accept the limitation of statistical indices.(Table III)

In this table one more major infectious morbidity has been displayed. Post operative catheterization was not done in any of these patients. It was found that there was no significant difference in occurrence of post operative urinary tract infection in both the groups. Thus presence of clue cells preoperatively has no bearing on the occurrence of UTI post-operatively.

### DISCUSSION

Bacterial vaginosis is now established as distinct entity and it is upto the clinicians now to understand the bearing of this condition in clinical practice. Presence of clue cells have been proved to have an excellent correlation with the diagnosis of this condition.(Thomson J.L. 1990). Presence of these cells could be demonstrated in air dried and rehydrated smears (Larsson P.G. - 1990) as well as by Papanicolau stain (Platz et al - 1989). Both of these methods were used in the present study and were found to be reliable in detecting clue cells.

A staggering 80.6% subjects developing infection of the abdominal wound or the cuff post operatively when they had clue cells present preoperatively indicates its importance in clinical practice. This

was irrespective of the pathology for which the surgery was done. Larsson (1990) and Soper D. (1990) also showed high incidence of post operative infectious morbidity in similar situations.

Though one may like to conclude that if post operatively, demonstrable clue cells are present there is a high chance of persistence or delayed appearance of infection however number of cases in this matter being understandably less, limitations of the result is accepted.

Post operative urinary tract infection however, could not be predicted by presence of clue cells preoperatively.

### CONCLUSIONS

Presence of clue cells preoperatively can reasonably accurately predict the occurrence of post operative infectious morbidity. Attempts should be directed towards the treatment of bacterial vaginosis which the clue cells indicate before taking up surgery in such cases.

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