

HAEMOPHILUS VAGINALIS VAGINITIS

by

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During the past two or three decades, a voluminous literature has accumulated on the subject of Vaginal *trichomoniasis* and *candidiasis*. Almost every Gynaecologist has become familiar with their clinical aspects.

In 1955, Gardner and Dukes demonstrated a new gram negative pleomorphic organism, *Haemophilus vaginalis* responsible for excessive vaginal discharge. 90% of so called "non specific vaginitis" disease entity is caused by this bacteria. This disease has not received the recognition which its clinical importance appears to warrant.

History and Morphology of H. Vaginalis

Leopold first isolated a small pleomorphic gram negative bacillus from genitourinary tract and he named it *Haemophilus Vaginalis* because of its requirement like *Haemophilus* group of organisms. Later Gardner and Dukes (1955) described the same organism in more detail. Like *Neisseria* group of organism, it is fastidious in its growth requirement, but its proper classification remains unsettled.

It is a gram negative pleomorphic bacillus measuring 1.0-3.0 micron in length and 0.3-0.5 micron in width. Bacterium is of low virulence, free of serious local or general manifestations.

Pathogenesis

There is still some controversy as to whether *H. Vaginalis* is a true vaginal

pathogen or normal constituent of vaginal flora. Sexually active women constituted the large majority of patients but it can occasionally affect children and postmenopausal women. This disease is communicable by sexual contact as husbands of patients with this disease were examined and this organism was recovered from urethra in many cases.

Material and Method

This study was carried out to find out the incidence of *H. Vaginalis Vaginitis*, in 500 patients, complaining of leucorrhoea at any age. Cases having any organic pathology in the genital tract were excluded.

A detailed history of duration of symptoms, colour of the discharge, itching, dyspareunia, urinary symptoms and relation with menstruation were obtained on a printed proforma in all the cases.

The vaginal discharge was collected from upper part of vagina on two sterilised cotton tipped applicator kept in a sterile tube.

Diagnosis of Haemophilus Vaginalis

Combinations of wet smear, gram's staining and cultures were done to arrive at a diagnosis of this disease.

(1) *Wet Smear*

On a clean non-greasy glass slide having a drop of normal saline, the vaginal discharge was scrapped from cotton tipped applicator with a scalpel. After placing a coverslip, the slide was

examined under high power microscope to look for *Candida* cells, *Trichomonas vaginalis* and "clue cells" for *Haemophilus vaginalis*.

"Clue Cell"

Presence of clue cell is diagnostic feature of *H. Vaginalis* infection. Usually there is scanty or absent leucocytes and lactobacillus. The epithelial cells show disintegration with indefinite outline and cytoplasm gives granular appearance due to *H. Vaginalis* bacteria uniformly spaced upon the surface of the cell and this cell is known as "clue cell". According to Lappage (1961) "clue cell" is due to some physical attraction of micro-organisms towards epithelial cell or vice-versa.

ed blood agar medium incubated in candle jar and thioglycolate broth. Lapage (1961) stated that the best medium is Casman's blood agar.

We did culture on blood agar plate and appearance of minute dew drop colonies within 48-72 hours at 37.0°C, confirmed the diagnosis of H-Vaginalis infection. Presence of gram negative bacilli from these colonies confirmed the cultural findings.

Results and Observations

The over all incidence of *H. Vaginalis* Vaginitis was found to be 10.8% (54 cases out of 500). These 500 patients included 54 pregnant and 11 unmarried girls.

From Table I, it is clear that out of 500

TABLE I
Incidence of Various Vaginal Infections in 500 Patients

Total No. of cases	Positive for fungus		Positive for T. vaginalis		Positive for H. vaginalis		Mixed infections		Negative	
	No.	%	No.	%	No.	%	No.	%	No.	%
500	172	34.4	105	21.0	54	10.8	24	4.8	145	29.0

Fallacy of "Clue Cell"

(1) There may be presence of false clue cell due to presence of other organisms on the cell.

(2) Clue cell may not be recognisable in 50% of patients having a concurrent acute *Trichomoniasis* or *Candidiasis*.

II. Gram's staining

Clumps of gram negative bacteria are seen lying over the epithelial cell but the fallacy is that sometimes gram positive rods are mixed up in the specimen making diagnosis difficult or slide may be over decolourised giving wrong diagnosis.

III. Culture

Gardner and Duke (1955) recommend-

cases, specific infection due to *Candida* spp., *T. Vaginalis* and *H. Vaginalis* was present in 71% cases only.

H. Vaginalis Vaginitis was prevalent during child bearing age of woman's life. About 2/3rd of the cases were met with between 20-40 years of age.

TABLE II
Incidence of *H. Vaginalis* Vaginitis in Non-Pregnant, Pregnant and Unmarried Girls

Type of cases	Total No.	Percentage
Non-pregnant	51	94.4%
Pregnant	3	5.6%
Unmarried	0	0.0%

H. Vaginalis vaginitis was rarely found during pregnancy and unknown in unmarried girls.

TABLE III

Different Types of Colour of Discharge in 54 Cases of *H. Vaginalis*

Colour of discharge	No. of cases	Percentage
Curdy white	5	9.3%
Thin white	33	61.1%
Yellow frothy	16	29.6%
Blood stained (Erosion excluded)	—	0.0%
Total	54	

TABLE V
Relationship of *H. Vaginalis Vaginitis* With Various Other Symptoms

Symptom	No. of cases	Percentage
Bad odour of discharge	32	59.3%
Pruritus vulva	24	44.4%
Dyspareunia	11	20.4%
Dysuria	6	5.5%
Mild Vaginitis	8	14.8%
Severe vaginitis	0	0
Vulvitis	0	0
Chronic cervicitis	5	9.3%
Erosion	3	5.5%

TABLE VI

Relationship of *H. Vaginalis Vaginitis* With pH of Vaginal Discharge in 54 Cases

4.7-5.0		5.1-5.4		5.5-5.8		5.9-6.1		6.1-6.5		6.6-6.9	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0	0	15	27.8	39	72.2	—	—	—	—	—	—

Thin white discharge was a common feature but it is not possible to pin point the diagnosis by just seeing the colour of vaginal discharge.

TABLE IV

Amount of Discharge in 54 Cases of *H. Vaginalis Vaginitis*

Amount of discharge	No. of cases	Percentage
Scanty	30	55.5%
Moderate	24	44.5%
Profuse	—	—

The vaginal discharge is rarely profuse in this infection.

H. Vaginalis is rarely associated with severe vaginitis, dyspareunia and urinary symptoms.

Rough estimation of pH of the vaginal discharge was done with narrow range B.D.H. indicator paper. Normal range of pH was found to be 4.0-4.2.

Conclusion drawn from this study was that *H. Vaginalis* grew only in medium varying from 5.0 to 5.8 and not in a very acidic or alkaline medium.

Discussion

In this study, 500 cases of leucorrhoea were screened for:

- (1) Candidiasis.
- (2) *T. Vaginalis vaginitis*.
- (3) *H. Vaginalis vaginitis*.

Detailed study of *H. Vaginalis vaginitis* was carried out. In 1954, Gardner and Dukes published the first report dealing with identification of *H. Vaginalis*. This has been widely described as one of the causes of infectious leucorrhoea.

Incidence of this infection was found to be 10.8% (54 cases out of 500). Gardner and Dukes (1955) identified *H. Vaginalis* in 12.0% cases of leucorrhoea, Grey and

Barnes (1965) in 25.7%, Dunkelbeg (1965) in 34% with Vaginitis.

Two thirds of cases belonged to age group of 20-40 years. This infection was rare in children, during pregnancy and in post-menopausal women. This disease was found only in married women. This may be explained on the basis of acquiring this infection due to sexual contact or childbirth. Grey and Barnes (1965) reported 2 cases of *H. Vaginalis* Vaginitis developing immediately after marriage. Gardner and Kaufman demonstrated urethral colonisation in 91 of 101 men examined in a study of husbands of women infected with *H. Vaginalis* Vaginitis.

Diagnosis

It is strongly felt that macroscopic examination of discharge should not be any criteria for diagnosis without microscopic and cultural examinations.

Although Gardner and Kaufman emphasised the diagnostic value of "clue cells" in wet smear examinations but usefulness of wet smear gets hampered by frequent occurrence of mixed infection with *T. Vaginalis* Vaginitis or candidiasis.

Diagnostic accuracy is not possible without use of appropriate cultural methods on blood agar medium and detecting small dew drop colonies which melted on touch.

In most of the cases, thin white, scanty or moderate vaginal discharge was found not associated with foul odour, pruritus vulvae, dyspareunia or urinary symptoms and discharge had the tendency to adhere to the vaginal walls. Gross inflammation of vagina was rarely observed.

H. Vaginalis Vaginitis was found to grow at a limited range of pH (5.1-5.8) as compared with candidiasis and *Trichomoniasis*.

Summary

1. 90% of so called non-specific vaginitis disease entity is caused by *H. Vaginalis* Vaginitis. It is a gram negative pleomorphic bacillus.

2. Ratio of incidence of Candidiasis, *Trichomoniasis* and *H. Vaginalis* Vaginitis is 1.6:1:0.5.

3. 71% of cases of leucorrhoea were due to specific infection.

4. 500 patients of leucorrhoea were screened to find out the incidence of *H. Vaginalis* Vaginitis and it was found to be 10.8%.

5. *H. Vaginalis* Vaginitis was found to be common during child bearing period of life and rare before puberty and after menopause.

6. *H. Vaginalis* Vaginitis is only found in married women.

7. The Vaginal discharge is usually scanty, thin white, rarely associated with bad smell, pruritus vulvae, dyspareunia and cervical lesions.

8. Presence of "clue cells" is diagnostic feature of this infection but in mixed infection, identification by clue cell may be difficult and we have to depend upon gram's staining and cultural methods to confirm the diagnosis.

9. *H. Vaginalis* was found to grow at a limited range of p.H. (5.1-5.8) as compared to candidiasis and *Trichomoniasis*.

10. Most of the cases responded to triple sulpham cream applied vaginally for 7-10 days. Recurrence occurred within a month in 2 cases.

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References

1. Brewer, J. I., Halpern, B. and Thomas, G.: H. Vaginalis Vaginitis, Am. J. Obstet. Gynaecol. 74: 834, 1957.
2. Dunkelbeg, W. E.: Am. J. Obstet. Gynec. 91: 998, 1965.
3. Gardner, H. L. and Dukes, C. D.: H.V. Vaginitis, Am. J. Obstet. Gynec. 69: 962, 1955.
4. Gray, L. A. and Barnes, M. C.: Am. J. Obstet. Gynec. 92: 125, 1965.
5. Gardner, and Kaufmann: Quoted by Reference 4.
6. Lappage, S. P.: Acta. Path. Microbiol. Scand. 52: 39, 1961.
7. Leopold, S.: Quoted for reference 6.

See Figs. on Art Paper XI

... of ovary is very rare. The incidence being 1 in 1,780 (Fleming and Warren). The particular age group of ovary is not clearly defined in these cases. Most patients suffer in middle age but either the abdominal mass or for complication such as hemorrhage, pyelitis or calcification (Warren). It is interesting to mention that in 29 cases reported so far were also primarily diagnosed as benign solid fibrous of ovary and only on microscopic examination identified as leiomyoma.

Various theories have been postulated for the occurrence of leiomyoma in ovary. The most popular being that the cells migrate from the walls of the blood vessels in the ovarian stroma. It is also postulated that leiomyoma is derived from the smooth muscle cells of the ovarian blood vessels. In contrast to the leiomyoma of the uterus, the leiomyoma of the ovary is usually solitary and may be thought of as arising from the smooth muscle cells of the ovarian blood vessels. It is usually benign and may be associated with endometriosis in rare cases.

Zoology

An interesting single case of ovarian leiomyoma is briefly presented in this paper. It is a histopathological feature which is

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