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## دراسات اكلينيكية عن الزوائد الجلدية في الابقار

محمد كرام

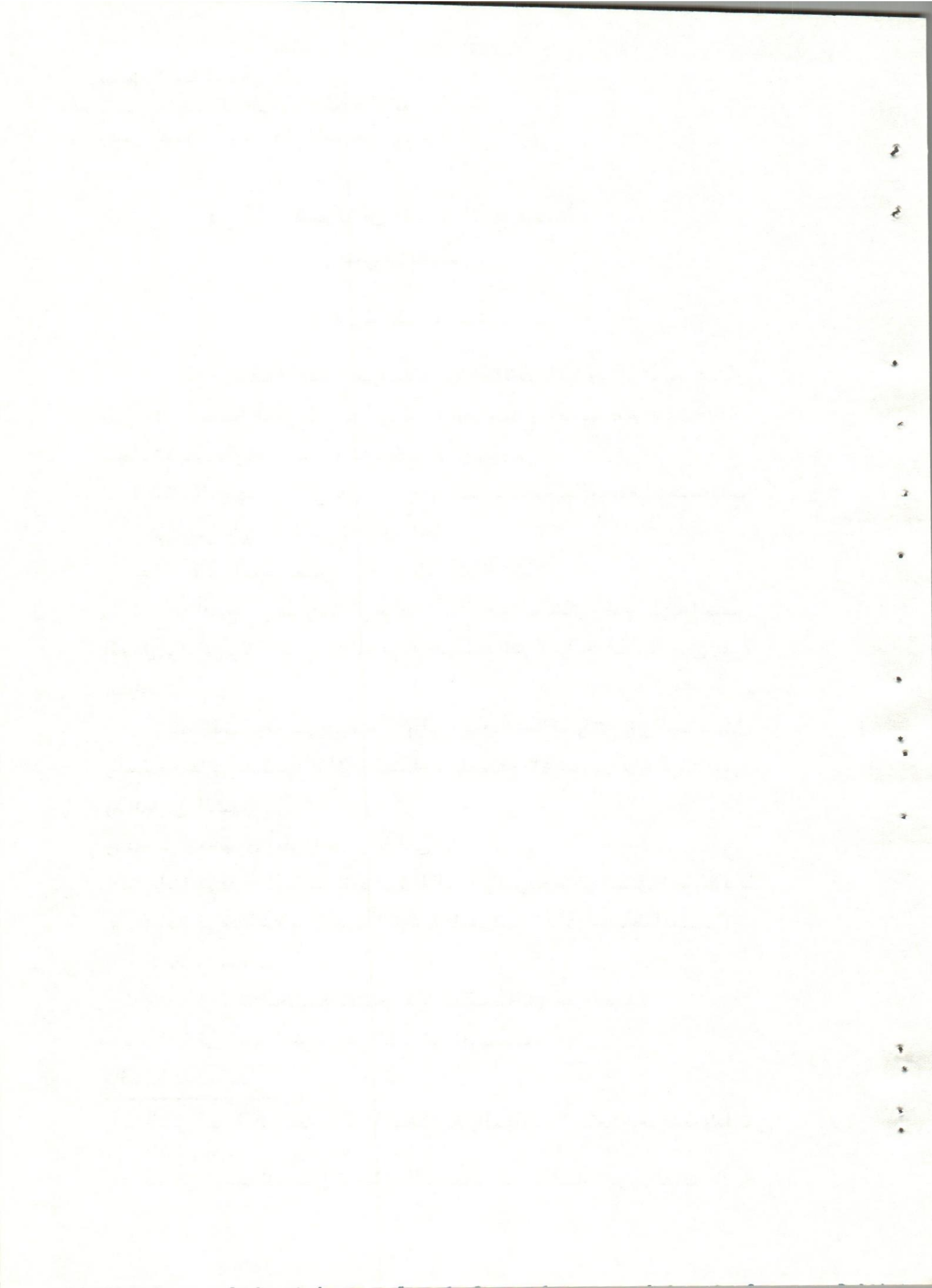
استهدف هذا البحث دراسة بعض الحالات المرضية بين الأبقار الفريزيان الخليط التي ظهرت على هيئة مرض جلدى أصاب بعض الحيوانات بمحافظة بني سويف ، هذا وقد شملت الدراسة :-  
• الشكل المرفولوجي الى جانب دراسة هستويولوجية لمعرفة التغيرات التي تطرأ على التركيب الدقيق للجلد .  
• وعلاقة هذا المرض بصورة الخلايا الدموية البيضاء .  
وقد اتضح من الدراسة أن هذه الأورام ظهرت بشكل واضح على جانبي العنق والرأس والأكتاف ، وذلك في الحيوانات التي يتراوح أعمارها بين ٢ - ٤ سنوات .

عند الفحص العيني لهذه الأورام ، وجد اختلاف واضح في الشكل والحجم ، فكان معظمها دائرى الشكل ، مفصصه (كالقرنبيط) ، رمادية اللون وخالية من الشعر .

وبالفحص المجهرى أمكن ايضاح مايلي :-

- ١- زيادة في عدد الخلايا المصدرة للالياف والتي تغير من الشكل العام للادمة .
  - ٢- زيادة في عدد خلايا الطبقة المولدة للبشرة مع ازدياد نشاط انقسام انوية الخلايا بها .
  - ٣- خلايا الطبقة الحبيبية تحتوى على كميات متفاوتة من الصبغة .
  - ٤- زيادة في كمية التقرن في الطبقة القرنية .
- بالنسبة للدم اتضح :

- ١- قلة في العدد الكلي لخلايا الدم البيضاء (في المليمتر المكعب) في الحيوانات المصابة .
- ٢- قلة في العدد النسبي للخلايا السابقة ، عدا خلايا المونوسيت .



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**SOME CLINICAL STUDIES ON BOVINE PAPILOMATOSIS**  
(With One Table and 4 Figures)

By  
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(Received at 1/9/1983)

**SUMMARY**

Common skin warts affecting cattle at Beni Suef governmental farm were recorded. The study included macroscopic appearance of lesions as well as their histopathological nature. Leucocytic picture was also discussed.

**INTRODUCTION**

Cattle and buffaloes are often affected with skin troubles. Whatever the cause, the incidence of skin disease among the domestic animals is high. The lesions will affect the value of the hide of diseased animal.

CREECH (1929) reported that the aetiological agent of bovine warts was a filtrable virus. This result was also recorded by TERPSTRA (1947), who suggested the use of vaccine to immunize animals against papillomatosis.

BAGDONAS and OLSON (1953) found that the animals became infected through direct contact with cattle having papillomatosis which had been previously affected. They also reported that indirect contact with affected animals was responsible for new infection in some cases, and were constitute the main source of infection.

In Egypt, SOLIMAN and ISKANDER (1963) stated that cutaneous papillomatosis is of more frequent occurrence in the bovine species than any of the other domestic animals. They believed that such warts are transmitted under field condition by direct contact or possibly by arthropod vectors through injuries to skin. The disease was recorded in Egypt also by ABDEL-GHAFFAR *et al.* (1975) and YOUSSEF (1976).

FICARELLI (1969), claimed that 5% of animals in a herd of cattle, developed fibro papillomatosis following ear tattooing during a tuberculosis control scheme.

Concerning age incidence CREECH (1929), BAGDONAS and OLSON (1953), OLSON (1954), HUCH (1965), FICARELLI (1969), WETTIMUNG and JAYASEKEIA (1970) found that fibropapillomatosis, occurred most often in calves under two years of age.

OGILVIE (1962), reported that wart growth consists of a series of fold united by a common stock to the skin. Each fold was made of squamous epithelium draped about a fibrous core. The author added, that epithelial covering was frequently thicker than normal epidermis.

JUBB and KENNEDY (1963) stated that the dermal papillae were drawn into long stands papillae and they were covered by thicker epithelium. SOLIMAN and ISKANDER (1963) described active proliferation at stratum cylindricum and degenerative changes in some parts of stratum spinosum in cattle affected with papillomatosis.

Alteration in the numbers of circulating leucocytes are of great importance in clinical medicine from the point of diagnosis and prognosis.

## MATERIALS and METHODS

A total number of 19 cross-bred Friesian cows were examined in the study. These animals belonged to Beni Suef Agriculture Secondary School. The age of the animals was between 2 and 10 years. Age of affected animals was 2 - 4 year. On May 1982 some animals began to suffer from cutaneous papillomatosis. The warts appeared on different sites of the skin including eye-lids and the base of the ear. Similar growths were also observed on both sides of the neck, dewlap, shoulders, but scarcely on back and upper side of the abdomen. No growths were observed on buffaloes at the same farm.

For histopathological study, samples from the skin at different regions were taken surgically from the living animals, fixed in 10 formalin solution and processed for embedding in paraffin. Sections, 6 - 8  $\mu$ , were stained with haematoxylin and eosin. Blood samples were collected from 3 severely affected animals as well as another 3 apparently non-affected ones.

Total leucocytic count ( $\times 10^6$  / $\mu$ L) was carried out using the Improved Neubauer haemocytometer and Turkey's solution as a diluent (COLES, 1980). Differential leucocytic count was calculated after staining the blood films with diluted Giemsa stain using the 4-field Meander Method. Relative values of differentiated cells were calculated. Test of significance between averages was made according to the Method of SNEDECOR (1956).

## RESULTS

### Clinical findings

Macroscopically, lesions were observed as wart-like skin projections of different shape and size and varied from pea to a size of an apple. These cutaneous warts were extended along the sides of the neck, head, at the base of the ear and shoulders. The lesions were lobulated, grayish, hairless mostly of typical cauliflower-like appearance (Fig. 1).

### Microscopic appearance:

Microscopical examination of stained sections revealed the picture of papillomatous neoplasm. At neck region they showed branching papillae with well-developed connective tissue core. The epithelium covering was frequently thicker than normal epidermis (Fig. 2). The Malpighian layer was thickened and showed diffuse pigmentation and some mitotic activity (Fig. 3). Degenerative changes were seen in stratum spinosum (Fig. 4).

### Haematological results

Non significant ( $p > 0.05$ ) decrease in the total number of leucocytes in affected animals was evident with slight decrease nearly in all types of differentiated cells. Only monocytes appeared to show tendency to increase in number (table 1).

## DISCUSSION

Cattle and buffaloes are often affected with skin troubles which are either caused by fungus, parasites, viruses etc. These skin lesions affect the value of the hide of diseased animal. Papilloma infection has become an important flock problem in many farms in Egypt. It is an infectious disease which is common among cattle and buffaloes particularly those kept under crowded condition.

### SOME CLINICAL STUDIES ON BOVINE PAPILOMATOSIS

From our study, only cattle under 4 years old were affected. The affection began with small rough wart-like structure on sides of the neck, the lesions then began to increase in both size and number to include shoulders, head and abdomen. Warts were small rounded elevations composed of filiform papillae, but the majority and all large ones had cauliflower like appearance. Their attachment to the skin was by slightly broad base. The consistency of such warts was generally hard owing to excessive keratinization. Similar findings were recorded by OGLILIVE (1962), JUBB and KENNEDY (1963), SOLIMAN and ISKANDER (1963), RUNNELS *et al.*, (1967), on the other hand, showed that such skin lesions were more or less, wart like in appearance, but surface of larger one was somewhat smooth.

Microscopical examination of stained sections revealed the picture of a neoplasm. Similar description was mentioned by CREECH (1929) and supported by BAGDONAS and OLSON (1953), SOLIMAN and ISKANDER (1963), and LEE and OLSON (1969).

Alteration in the numbers of circulating leucocytes are of great importance in clinical medicine from the point of diagnosis and prognosis. From our results leucopenia was evident nearly in all animals affected with cutaneous papillomatosis. The examined animals showed apparent decreased number in both total and differential leucocytic count with exception of monocytes as compared to controls from the same flock. The cause of bovine papillomatosis was established as a virus by TERPSTRA (1947), BERGEY (1948), and McENTEE (1950 - 1951) who proved its transmissibility.

Reduced total blood granulocytes was mainly due to neutropenia; this may result from an increased destruction of neutrophils in the circulation without compensatory inflow into the vascular system or decreased production of cells in the marrow. Monocytes are known to play an important part in the host defence against viruses. These cells were found to remove antibodies and neutralized viruses and degrade the antibody virus complex. The increase in the number of these cells is parallel to the fact that papillomatosis is caused by viral agent, and reflects the chronicity following the crisis of the acute infection.

Buffaloes which lived side by side with the affected cattle in the same farm were not affected. Accordingly, the role suggested to be played by insect vectors in the transmission of the disease (DALMAT, 1958; CASE, 1961; SOLIMAN and ISKANDER, 1963) could not be emphasized in the present work. As well, our results were inconsistent with that of LIESS (193) who reported that non-pigmented white regions of the skin are more suitable as a site of infection than pigmented ones since in the affected cattle, lesions have been observed both in white and black skin areas.

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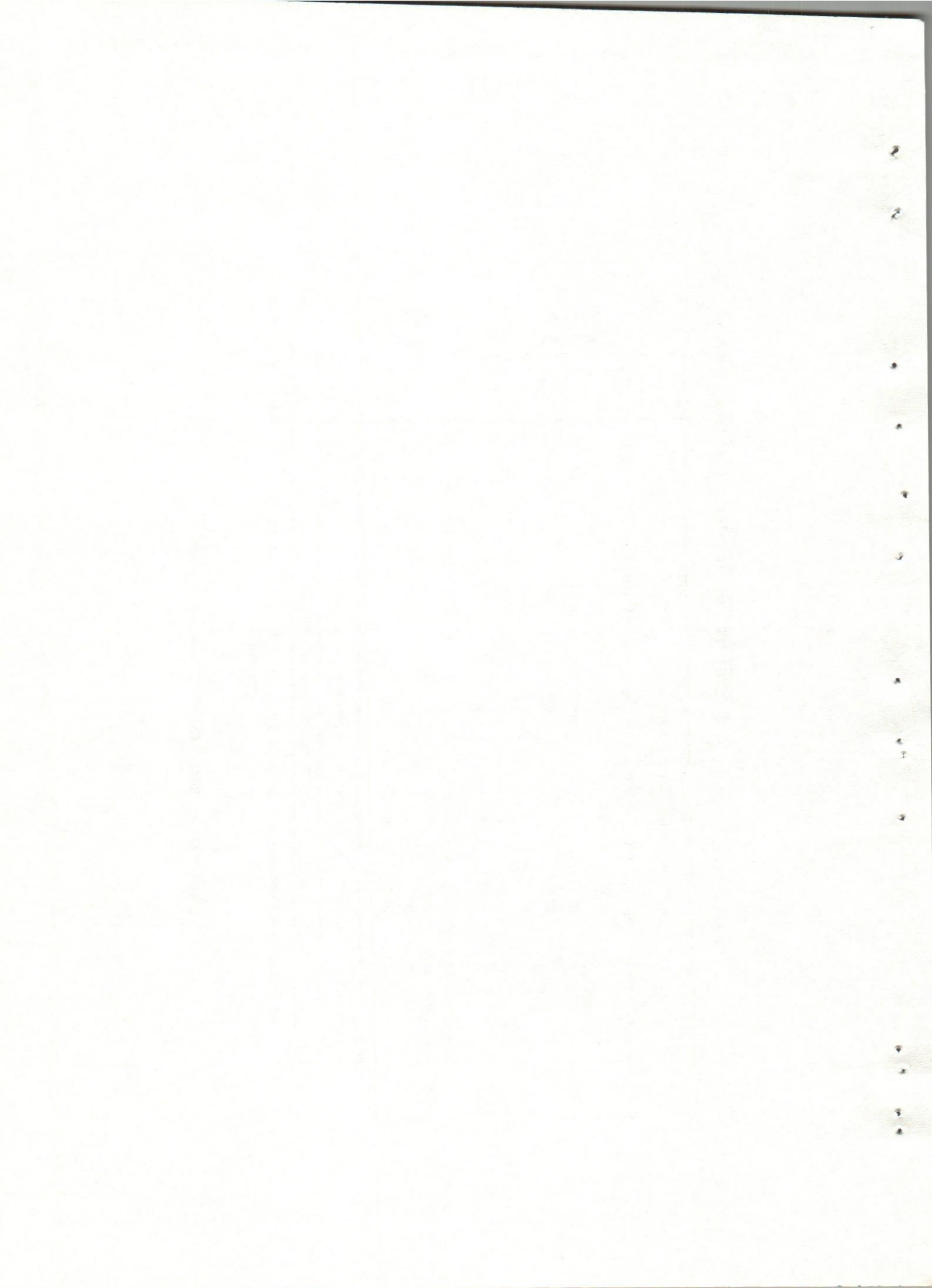
## SOME CLINICAL STUDIES ON BOVINE PAPILLOMATOSIS

Table (1)  
Total and Differential leucocytic count in cattle affected with cutaneous papillomatosis.

	Differential leucocytic count						Total count ( $\times 10^3$ /ul)
	Lymph %	Neutro %	Monocyte %	Eosin. %	Baso %		
<b>Affected animals</b>							
1	49	40	11	0	0.0		10.500
2	59	32	8	1	0.0		11.500
3	66	25	5	5	0.0		10.650
Av	58.0	32.33 $\pm$ 7.507	8.0 $\pm$ 3.24	2.0	12.646	0.0 $\pm$ 0.0	10.833 $\pm$ 0.539
<b>Control animals</b>							
I	50	41	7	2	0.0		11.950
	50	41	7	2	0.0		
II	53	37	7	3	0.0		13.350
	58	35	6	1	0.0		
III	66	31	1.0	2	0.0		13.800
	63	30	2	4	1.0		
Av	56.667 $\pm$ 6.802	35.833 $\pm$ 10.602	5.0 $\pm$ 2.757	2.333 $\pm$ 1.033	0.166		13.033 $\pm$ 4.604
	(P/ 0.05)	(P/ 0.05)	(P/ 0.05)	(P/ 0.05)	(P/ 0.05)		(P/ 0.0)

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Av: Average





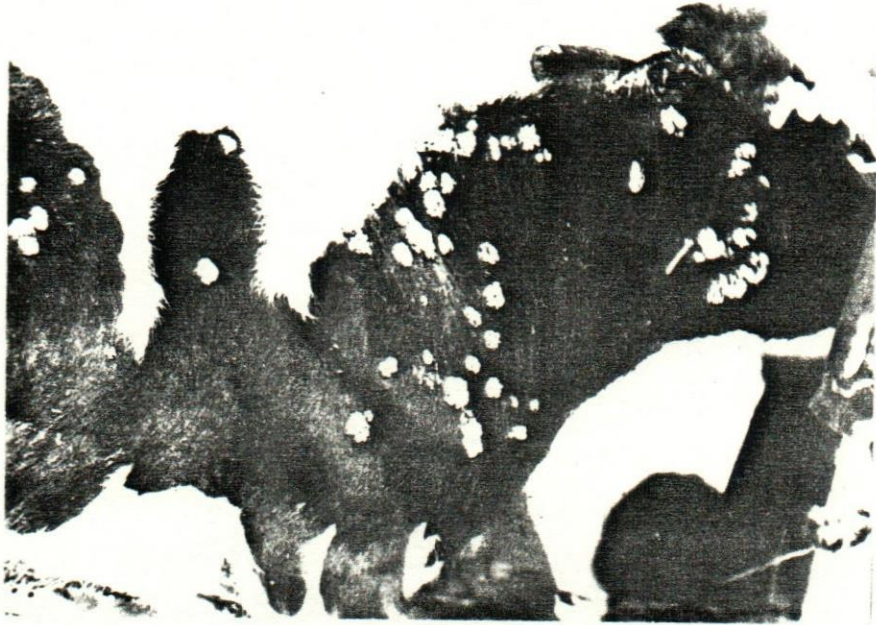
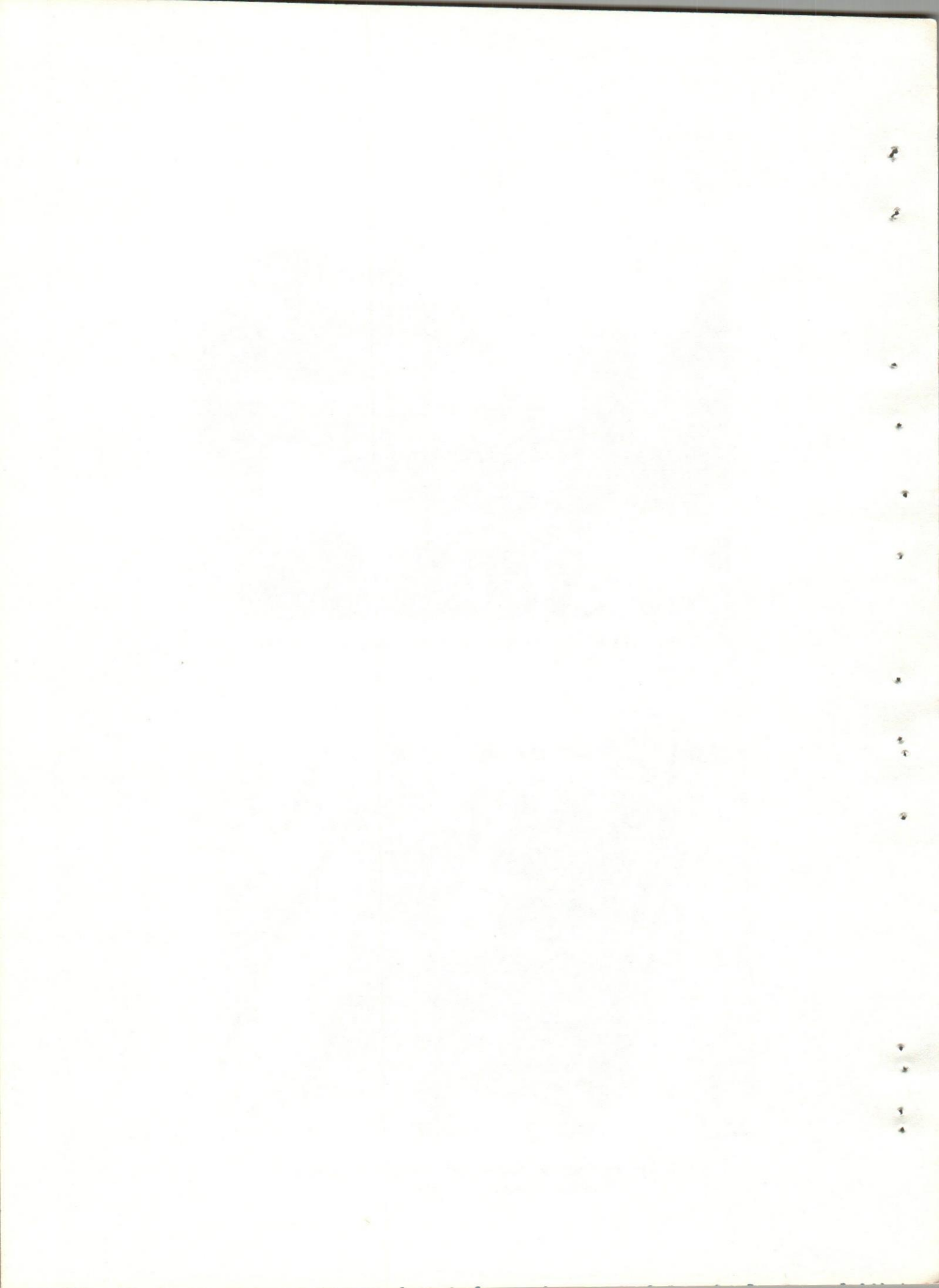
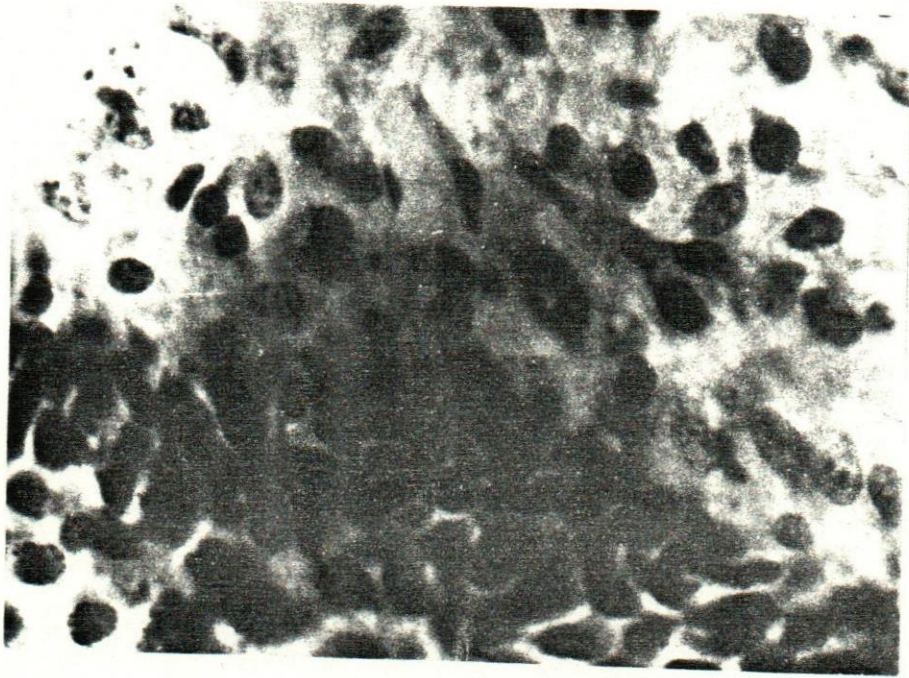


Fig. (1): Skin warts of different size on head, neck, shoulder and back of affected cow.



Fig. (2): Wart section showing branching papillae with well developed cores ( 40 X, H & E )





**Fig. (3):** Section showing thickness and some mitotic activity of stratum basalis ( 400 X , H & E ).



**Fig. (4):** Diffuse pigmentation and degenerative changes in stratum spinosum ( 400 X , H & E ).

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