

ازالة الطحال تجريبيا فى الأغنام
١- الطريقة والتغيرات الهيماتولوجية

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ازيل الطحال تجريبيا لعدد ثمانية أغنام بهدف دراسة تأثير هذه العملية على الحالة الأكلينيكية للحيوانات بالاضافة الى معرفه التغيرات الهيماتولوجية المحتملة بعد ١ ، ٢ ، ٣ ، ٤ ، ٥ ، ٦ ، ٧ ، ٨ ، ١٥ ، ٧٥ أسبوع من أحمرء العملية ، ولقد أظهرت هذه الدراسة أن إزالة الطحال تجريبيا ليس له تأثيرا على الحالة الأكلينيكية لهذه الحيوانات ، كما وأن فد لوحظ حدوث انخفاض فى صورة كريات الدم الحمراء بعد أسبوع حيث استمر ذلك حتى سهايه التجربة غير أن هذه المؤثرات عند ٧٥ أسبوع كانت فى المدى المقبولة لمثل هذه الحيوانات فى حالتها السليمة .

أما بالسبب لصورة كريات الدم البيضاء فقد حدث ارتفاع فى العدد الكلى حتى قبل الاسبوع ال ٧٥ بعد العملية ، أما بالنسبة لنسب الخلايا البيضاء فقد تأرجح .

The first part of the paper is devoted to a
general introduction of the subject.

The second part is devoted to a detailed
description of the method.

The third part is devoted to a detailed
description of the results. The first part of this
part is devoted to a description of the
general results. The second part is devoted to a
description of the particular results. The third
part is devoted to a description of the
conclusions. The fourth part is devoted to a
description of the references.

The fifth part is devoted to a description of the
conclusions. The sixth part is devoted to a
description of the references.

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SPLENECTOMY IN SHEEP

I. TECHNIQUE AND HAEMATOLOGICAL CHANGES

(With Two Table)

By

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SUMMARY

Splenectomy was performed on eight rams to study the effect of this operation on the haematological picture of such animals. Samples were taken before and at 1, 2, 3, 4, 5, 6, 7, 8, 15 & 75 weeks post operation. Red and white cells picture was influenced by this operation.

INTRODUCTION

Spleen was considered to be of great importance for human and animal body since it is incriminated in blood formation, blood destruction, acts as a reservoir for red blood cells and share in the defensive mechanism of the body against infection. In veterinary practice, splenectomy, from one hand, was performed to correct many surgical affections of the spleen. On the other hand, splenectomy was practiced for experimental research work where animals usually sacrificed just after the end of the experiment. Most haematological studies on the effect of splenectomy have been carried out till the end of the experiment. The aim of the present study is to investigate the effect of splenectomy on the haematological picture of rams kept for rather long periods (75 weeks) after the surgery.

MATERIALS AND METHODS

Experimental animals:

Eight rams, aged 1-2 years and wieghting 30-40 kgs. were used. There animals were placed on optimum nutrition for 21 days before operation.

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During this period the animals were observed clinically and blood, faecal and urine samples were collected. Examination of collected blood samples were in the normal range accepted for such animals while urine and faecal samples were negative for any abnormal constituents for urine and for ova, larvae or whole worms for faeces.

Technique of spleectomy:

Animals were fastened for 24 hrs. before surgery. After routine surgical preparation of the seat of operation, at the left flank, each animal was sedated with Rompun in a dose of 0.2 mg/Kg. Bwt. Local anaesthesia was induced by infiltration of 1% procaine HCL at the seat of incision. The skin incision was carried out ventrally and caudally, 1cm behind and parallel to the last rib. The incision (10-20 cm) extended from a point 5 cm below the transverse process of the last rib. The incision passed through the skin, subcutaneous tissue, external and internal oblique, and transverse abdominal muscles. The peritonium then punctured and widened upward and downward using scissor. The spleen was found cranial and dorsal to the flank incision, rarely the caudal border of the spleen can be seen through the incision. The right hand was introduced between the visceral surface of the spleen and the rumen. The gastrosplenic ligament was severed manually by using the tip of the fingers. Sometimes the ligament was found too hard to be ruptured manually and a long dissecting scissor was needed to cut it. The connective tissue area connecting the spleen and rumen is bluntly separated by the tip of the fingers till reaching the cranial border of the spleen. The hand was withdrawn and reintroduced above the spleen between its parietal surface and the diaphragm. The phrenicosplenic ligament was severed bluntly by the tip of the fingers or by the use of a long dissecting scissor. The area of the connection between the spleen and diaphragm was separated bluntly until reaching the cranial border of the spleen. The spleen can be readily brought through the flank incision with a minimum amount of traction. A double ligature was applied on the splenic vessels and nerves entering the hilus of the spleen

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with a 1 cm apart from each other and the spleen was removed by cutting between the two ligatures. The incision was routinely sutured.

Haematological studies:

Blood samples were collected before as well as after 1,2,3,4,5, 6,7, 8,15 & 75 weeks after surgery. Blood samples were collected with E.D.T. A. as an anticoagulant. Samples were analysed for P.C.V. (%), R.B.CS. (million/mm), Hb (gm/100ml), M.C.V. (cm) M.C.H. (uug.) and M.C.H. (%). The white blood picture (absolute and differential count) was also studied. Routine methods described by COLES, (1974) were applied. Statistical analysis of data was performed according to SNEDECOR, (1967).

RESULTS AND DISCUSSION

All eight rams survived the surgery and recovery was established without any complications. The surfical flank wounds were healed by primary union and skin stitches were removed at the 10th day postoperation.

Haematological changes associated with splenectomy:-

One week after surgery there was a slight decrease in R.B.CS.count, Hb. concentration and P.C.V. values in comparison with the preoperative levels. Mean values dropped from 10.39 to 10.23 mill. for R.B.CS, from 11.6 to 10.30 gm. for Hb., from 29.1 to 27.1 for P.C.V. (Table 1). Such decrease became significant latter on till the 15th week after surgery. ($P < 0.05$). The reason for such decrease in splenectomized sheep, in the view of PEACOK and MANTON, (1963) is that the spleen plays a role which normally stimulate the activity of bone marrow. At the 75th week after surgery, mean values of abov mentioned indices, had returned to rather similar pre-operative levels (Table 1). SCHALM (1965) discussed this phenomena as is due to the compensatory overgrowth of bone marrow.

M.C.H. and M.C.V. values were consequently affected where microcytic hypochromic anaemia ensued after two weeks of splenectomy and lasted till the beggining of the 15th week post-operation. Both returned to the

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normal limits at the 75th week. (Table 1). Obtained results were in accordance with GATES, (1953) and RODRIGUEZ *et al*, (1973). The authors reported hypochromic anaemia in sheep after splenectomy however macrocytic hypochromic anaemia was recorded by BOSTICK, (1945).

Changes in W.B.CS. - total and differential- counts are presented in Table 2. Figures indicate that leucocytosis was evident. This phenomena began from the first week after surgery and lasted till the end of the experimental period where it dropped to rather lower value of the pre-operative ones. SCHALM (1965) discussed this leucocytosis as in absence of spleen the W.B.CS. fail to be destroy.

Slight lymphocytosis (Table 2) was evident during the whole period of experiment. Neutrophils, on the contrary, were decreased. Obtained results are in greement with BOSTICK, (1945). Variations in the eosinophilic percentage were still in the normal range accepted for normal sheep. Complete absence of basophils from the circulation was evident with insignificant monocytosis.

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Table (1) Red blood cells changes in rams after splenectomy

	Total Red Cells Mill./mm	P. C. V. (%)	Hb. content (Gm/100ml)	M. C. V. (Cum)	M. C. H. (uug)	M. C. H. C. (%)
Pre-operative	10.39 ± 1.05	29.1 ± 1.40	11.6 ± 1.9	66.7 ± 3.5	23.4 ± 2.2	38.1 ± 3.2
1st. Week	10.23 ± 0.59	27.1 ± 1.40	10.30 ± 2.0	51.50 ± 5.2	22.0 ± 1.5	35.5 ± 2.3
2nd. Week	5.63 ± 1.83	26.00 ± 1.80	6.80 ± 1.50	39.00 ± 3.7	15.0 ± 1.5	32.0 ± 6.2
3rd. Week	7.35 ± 2.88	25.6 ± 4.90	9.90 ± 1.10	42.50 ± 6.3	17.0 ± 1.5	42.2 ± 5.3
4th. Week	6.93 ± 3.26	25.20 ± 3.20	8.40 ± 2.70	29.50 ± 3.2	9.1 ± 1.5	32.0 ± 2.1
5th. Week	7.75 ± 2.01	24.40 ± 6.00	7.30 ± 1.50	31.50 ± 1.6	10.0 ± 0.9	34.0 ± 3.1
6th. Week	6.96 ± 1.08	18.30 ± 2.30	7.10 ± 1.30	38.00 ± 2.6	16.0 ± 1.1	40.0 ± 2.6
7th. Week	7.03 ± 0.03	19.50 ± 1.80	7.90 ± 1.30	44.00 ± 3.5	17.0 ± 1.2	40.0 ± 6.1
8th. Week	6.27 ± 1.34	21.10 ± 2.40	8.50 ± 0.60	41.00 ± 3.1	17.5 ± 1.1	43.0 ± 6.1
15th. Week	8.94 ± 0.78	28.80 ± 2.20	10.20 ± 2.20	64.00 ± 2.3	22.0 ± 0.8	40.0 ± 3.2
75th. Week	8.94 ± 0.78	29.80 ± 3.70	10.90 ± 1.40	63.00 ± 4.2	22.0 ± 1.1	41.5 ± 4.1

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Table (2) White blood cells picture in splenectomized rams

	Total White Cells	DIFFERENTIAL		LEUCOCYTIC		COUNT (%)
		Lymph.	Segmented	Fosin.	Baso.	
Pre-operative	11.90±2.90	56.00±3.2	36.0±3.2	5.0±0.2	0	3.0±0.2
1st. Week	12.20±2.70	60.0 ±2.9	30.0±5.3	7.2±0.2	0	2.9±0.4
2nd. Week	14.20±3.70	91.1 ±2.3	29.0±3.3	6.9±0.2	0	4.7±0.3
3rd. Week	13.40±2.30	63.0 ±1.9	26.0±1.1	8.9±1.2	0	3.1±0.3
4th. Week	15.50±3.70	62.1 ±1.7	28.1±2.1	8.7±1.2	0	2.9±0.9
5th. Week	12.30±3.50	60.1 ±1.9	29.0±2.3	7.8±0.2	0	3.9±0.9
6th. Week	20.70±3.40	61.1 ±2.1	31.0±2.2	7.6±2.2	0	2.9±0.2
7th. Week	21.80±5.70	64.0 ±1.1	27.0±0.2	7.8±1.2	0	4.1±0.3
8th. Week	19.10±6.20	65.0 ±2.9	25.0±2.2	9.1±0.2	0	3.9±2.2
15th. Week	13.80±1.30	61.1 ±2.2	30.0±1.2	6.1±2.2	0	2.8±0.3
75th. Week	10.30±0.70	63.2 ±1.9	27.2±1.1	8.8±2.1	0	3.1±0.7