SOME ASPECTS OF DYSTOCIA IN SHEEP WITH PARTICULAR REFERENCE TO ROMNEY STUD EWES

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ABSTRACT

Three studies were undertaken to investigate dystocia in Romney stud ewes.

In the initial study an analysis was made of 4,400 individual performance records collected over a period of nine years from a Romney stud flock. On the basis of the records, dystocia in the flock was attributed to a physical disproportion between the lamb and the maternal pelvis, and its incidence was shown to be highly correlated with the mean birth weight of single lambs ($r=0.84$). Dystocia appeared to be unrelated to the effects of parity, weight at mating, or litter size of ewes. A high repeatability of the condition was demonstrated. Differences between sires with respect to dystocia in their progeny at birth were demonstrated in some years and were shown to be related to lamb weight, such that those sire groups with higher average lamb weight experienced the greatest incidence of dystocia. The decline in the incidence of dystocia, apparent from the records, was attributed to a reduction in mean birth weight of lambs and a possible increase in pelvic dimensions of the ewes, brought about by selective breeding.

Secondly, a tocometric study of 18 Romney ewes was made using intra-amniotic open ended catheters and intra-abdominal balloons implanted at laparotomy. Dystocia occurred in 12 ewes and, with the exception of one ewe that developed uterine inertia, was associated with abnormalities in presentation, position or posture (maldisposition) of the lamb at birth. By comparison, the presentation, position and posture (disposition) of the lambs born to the eutocous ewes was normal. A significant difference in birth weight of lambs was demonstrated between ewes that gave birth to lambs in normal disposition as opposed to those that gave birth to maldisposed lambs, and between ewes that experienced eutocia and dystocia. Uterine activity during late pregnancy, characterised by alternate periods of activity and quiescence, was not related to the disposition of the lamb at birth. During first stage labour uterine activity was higher in those ewes that experienced dystocia. However, this was considered to be a reflection of the higher lamb birth weight in this group as birth weight was correlated with uterine activity during the final three hours of first stage labour. Low abdominal bearing down effort was thought

to contribute to the lack of progress during parturition in three ewes with posteriorly presented foetuses. Except for one case of uterine inertia, low uterine pressures or abdominal bearing down effort was not implicated as a primary cause of dystocia in these ewes.

In the final study a method of radiographic pelvimetry was developed which was used to study the relationship between pelvic size and lamb size at birth in ewes with histories of eutocia and dystocia. In addition, three different age groups of ewes were radiographed to provide information on changes in pelvic dimensions with age. Large differences in respect to the relationship between estimated area of the pelvic inlet and the size of the lamb were demonstrated between ewes with histories of eutocia and dystocia. The relatively large pelvic area of the eutocous ewes was considered to be largely responsible for differences in the recorded incidence of dystocia between the groups. Estimates of correlations between internal and external pelvic measurements taken from the radiographs were thought to be too low to be of practical use in selection for larger internal pelvic area. Furthermore the relationship between internal and external pelvic measurements was found to alter with age in some cases, indicating that the effect of age on these relationships would have to be examined further if selection by means of external pelvic measurements were to be attempted.

As a result of these investigations, the hypothesis was advanced that dystocia in Romney stud ewes is commonly caused either by the relatively small size of the pelvic inlet of the ewe, or the relatively large size of the lamb, or both. There were indications from the first and third studies that the flock incidence of dystocia can be reduced by genetic selection.

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LIST OF CONTENTS

Page

I: INTRODUCTION 1

II: LITERATURE REVIEW - DYSTOCIA IN SHEEP AND CATTLE 3

II.1. Introduction 3

II.2. Dystocia in Sheep 3

II.2.1. Importance and incidence 3

II.2.2. Immediate causes of dystocia 5

II.2.2.1. Foeto-pelvic disproportion 5

II.2.2.2. Foetal maldisposition 6

II.2.2.3. Non-dilatation of the cervix uteri 7

II.2.2.4. Vulval stenosis and uterine inertia 9

II.2.3. The influence of the lamb on dystocia 11

II.2.4. The influence of the ewe on dystocia 12

II.3. Dystocia in Cattle 13

II.3.1. Importance and incidence 13

II.3.2. Immediate causes of dystocia 17

II.3.2.1. Foeto-pelvic disproportion 17

II.3.2.2. Maldisposition of the foetus 17

II.3.2.3. Functional stenosis of the posterior vagina and vulva 19

II.3.2.4. Incomplete cervical dilatation, and uterine inertia 19

II.3.3. The influence of the dam 19

II.3.3.1. The effect of age and parity of the dam 19

II.3.3.2. The influence of the genotype of the dam on dystocia 20

II.3.3.3. The influence of pelvic size on dystocia 22

II.3.3.4 The influence of nutrition on dystocia 23

Page

II.3.3.5. Dystocia referable to pathology of the pelvis and reproductive tract 23

II.3.4. The influence of the sire 24

II.3.5. The influence of the calf on dystocia 25

II.3.5.1. The effect of birth weight 25

II.3.5.2. The effect of calf sex 26

II.3.5.3. The effect of gestation length on dystocia 26

II.3.5.4. The effect of conformation of the calf on dystocia 27

II.3.5.5. The effect of pathology of the foetus 28

II.3.6. The influence of season of birth on dystocia 28

III: DYSTOCIA IN A ROMNEY STUD FLOCK 30

III.1. Introduction 30

III.2. Materials and Methods 30

III.2.1. Breeding management and lambing 30

III.2.2. Collection and processing of data 31

III.2.3. Statistical methods 33

III.3. Results 33

III.4. Discussion 49

III.5. Conclusion 55

IV: A TOCOMETRIC STUDY OF THE OVINE UTERUS 56

IV.1. Introduction 56

IV.2. Literature Review: Internal Tocometry 56

IV.2.1. Introduction 56

IV.2.2. Internal tocometry in women 57

IV.2.3. Internal tocometry in ruminants 62

IV.3. Materials and Methods 65

IV.3.1. Animals 65

IV.3.2. Surgery 67

IV.3.3 Experimental procedure 70

Page

IV.3.4. Analysis of records 73

IV.4. Results 75
IV.4.1. Pre-partum activity 78
IV.4.2. First stage labour 86
IV.4.3. Second stage labour 92

IV.5. Discussion 96

IV.6. Conclusion 102

V: A COMPARATIVE PELVIMETRIC STUDY OF EWES WITH HISTORIES OF EUTOCIA AND DYSTOCIA 103

V.1. Introduction 103

V.2. Literature Review 103
V.2.1. Introduction 103
V.2.2. The anatomy of the pelvic canal in the ewe and physiological changes which occur during pregnancy and parturition 103

V.2.3. Pelvimetry in the ewe 106
V.2.3.1. Methodology 106
V.2.3.2. The effect of age on pelvic dimensions of sheep 106
V.2.3.3. The effect of breed of ewe on pelvic dimensions 106
V.2.3.4. The relationship between external and internal measurements of the dissected pelvis 109
V.2.3.5. The relationship between measurements of the pelvis in the live ewe, and internal pelvic dimensions 110
V.2.3.6. The relationship between internal pelvic dimensions and other body measurements 111
V.2.3.7. Pelvic dimensions and dystocia 111

V.2.4. Pelvimetry in cattle 112
V.2.4.1. Methodology 112

Page

V.2.4.2. The effect of age on pelvic dimensions 113

V.2.4.3. The effect of breed on pelvic dimensions 113

V.2.4.4. The relationship between internal and external pelvic measurements 114

V.2.4.5. Pelvic dimensions and dystocia 114

V.2.5. Summary 114

V.3. Materials and Methods 115

V.3.1. Radiographic pelvimetry 115

V.3.1.1. Method 115

V.3.1.2. Procedure 116

V.3.1.3. Analysis of films 117

V.3.1.3.1. Pelvic diameters measured from radiographs 117

V.3.1.3.2. Calculations 118

V.3.2. Animals 120

V.4. Results and Discussion 122

V.4.1. Pilot trial 122

V.4.1.1. Results 122

V.4.1.2. Discussion 122

V.4.2. Between group and between age comparisons of pelvic measurements 124

V.4.2.1. Results 124

V.4.2.2. Discussion 132

V.5. Conclusion 136

VI: FINAL DISCUSSION AND CONCLUSION 137

REFERENCES 139

APPENDICES 01

LIST OF TABLES

Table		Page
II(i):	Lamb mortality attributed to dystocia (based on necropsy findings)	4
II(ii):	The incidence of dystocia in sheep	5
II(iii):	The incidence of maldisposed lambs at birth in sheep	7
II(iv):	Types of foetal disposition seen in sheep with their frequencies of occurrence	8
II(v):	Incidence of dystocia in four flocks	10
II(vi):	The incidence of dystocia in cattle	14
II(vii):	Crossbreeding and dystocia in cattle	16
II(viii):	The influence of parity of the dam on the incidence of dystocia	20
II(ix):	Influence of the sire on the incidence of dystocia and peri-natal mortality	24
II(x):	The effect on peri-natal mortality of using sires selected against this trait in an artificial breeding programme involving heifers	25
II(xi):	Influence of calf sex on incidence of calving difficulties	26
III(i):	Flock history of dystocia	37
III(ii):	Comparison of ewe weights at 18 months in relation to dystocia at 2 years	38
III(iii):	The incidence of dystocia in relation to parity of ewe	39
III(iv):	The incidence of dystocia in ewes in relation to their performance in the previous year	40
III(v):	Single lamb weights of assisted ewes compared with those of unassisted ewes	41
III(vi):	Proportion of ram lambs in total assisted single births	42
III(vii):	The influence of sex of lamb on single lamb weight	43
III(viii):	Proportion of dystocous births which were associated with a maldisposed lamb in ewes bearing single and twin lambs	44
III(ix):	Proportion of dystocous births which were associated with a maldisposed lamb in primiparous and multiparous ewes	45
III(x):	Influence of the sire on dystocia	46

Table		Page
III(xi):	Estimates of coefficients for the multiple regression equation relating % dystocia to mean lamb weight and standard deviation of lamb weight for sire groups in seven years	47
III(xii):	Comparison of single lamb weights of maiden and older ewes	48
IV(i):	The development of internal tocometry in human obstetrics	61
IV(ii):	Type of birth and history of ewes in the study	76
IV(iii):	Lamb birth weight, gestation length. pelvic area and the ratio of pelvic area to lamb birth weight in relation to disposition of the lamb at birth	77
IV(iv):	Pre-partum uterine activity and disposition of the lamb	79
IV(v):	Active periods in which uterine tone fell more than 2.5mm Hg below the resting pressure	80
IV(vi):	First stage labour activity and type of birth	92
V(ia):	Differences in pelvic dimensions between Dorset Horn and Border Leicester ewes	108
V(i):	Comparison of pelvic dimensions obtained by radiographic pelvimetry and actual measurement after slaughter	123
V(ii):	Mean pelvic dimensions and body weights of groups I, II and III ewes (mature ewes)	125
V(iii):	Significance of differences in means between groups I, II and III ewes	126
V(iv):	The relationship between pelvic area and birth weight of the lamb in the three groups of mature ewes	126
V(v):	Correlations between pelvic dimensions of groups I, II and III ewes (mature ewes)	127
V(vi):	Mean pelvic dimensions and body weights of groups III, IV and V ewes	129
V(vii):	Significance of differences in means between groups III, IV and V ewes	130
V(viii):	Correlations between pelvic dimensions of groups III, IV and V ewes	131
V(ix):	Pelvic measurements of New Zealand Romney ewes	132
VI(i):	Decrease in the incidence of dystocia achieved by selection	138

LIST OF FIGURES

Figure		Page
III(i):	Incidence of dystocia and mean birth weight of single lambs	35
III(ii):	Difference in birth weight between male and female lambs and the percentage of assisted single lambs that were males	36
IV(i):	Intra-abdominal balloon (a), intra-amniotic catheter (b) and stainless steel probe (c)	68
IV(ii):	Block diagram showing arrangement of equipment used for monitoring intra-uterine pressure	71
IV(iii):	Pre-partum uterine activity	80
IV(iv):	Pre-partum uterine activity	81
IV(v):	Pre-partum uterine activity	82
IV(vi):	Pre-partum uterine activity	83
IV(vii):	Pre-partum uterine activity	84
IV(viii):	Uterine activity during first stage labour	87
IV(ix):	Uterine activity during first stage labour	88
IV(x):	Uterine activity during first stage labour	89
IV(xi):	Uterine activity during first stage labour	90
IV(xii):	Uterine activity during first stage labour	91
IV(xiii):	Work done by the accessory muscles during second stage labour	93
IV(xiv):	Work done by the accessory muscles during second stage labour	94
IV(xv):	Work done by the accessory muscles during second stage labour	95
V(i):	Schematic representation of method of determining distances of planes of interest from the cassette, for calculation of magnification factors	119

LIST OF PLATES

Plate		Between Pages
III.1.	Lockwood Romney Stud (Kairanga)	30-31
III.2.	Lockwood Romney Stud (Hawke Bay)	30-31
IV.1.	Ewes in recording stall during monitoring of intra-uterine and intra-abdominal pressures	66-67
IV.2.	Active period 14 days before labour in sheep 75R showing amplitude measurement 'a'	66-67
IV.3.	Active period in sheep 82Y 2 days before labour	85-86
IV.4.	Decrease in resting pressure during an active period in sheep 64R 1 day before labour	85-86
IV.5.	Decrease in resting pressure for part of an active period in sheep 64R 1 day before labour	85-86
IV.6.	Decrease in resting pressure during an active period in sheep 64R 1 day before labour	85-86
IV.7.	Onset of first stage labour in sheep 57R	85-86
IV.8.	Onset of first stage labour in sheep 82Y 18 hours 30 minutes before delivery	85-86
IV.9.	First stage labour in sheep 82Y 8 hours 30 minutes before delivery	91-92
IV.10	First stage labour in sheep 82Y 6 hours before delivery	91-92
IV.11.	First stage labour in sheep 82Y 5 hours 30 minutes before delivery	91-92
IV.12.	First stage labour in sheep 82Y 2 hours before delivery	91-92
IV.13.	Second stage labour in sheep 82Y	91-92
IV.14.	Active period in sheep 64R 2 days before labour	91-92
IV.15.	Active period in sheep 64R 2 days before labour	91-92
IV.16.	Onset of first stage labour in sheep 64R 10 hours before delivery	91-92
IV.17.	First stage labour in sheep 64R 6 hours 30 minutes before delivery	91-92
IV.18.	First stage labour in sheep 64R 30 minutes before second stage labour, 50 minutes before delivery	91-92
V.1.	Pelvic diameters on lateral radiograph	121-122
V.2.	Pelvic diameters on ventro-dorsal radiograph	121-122
V.3.	Romney stud ewe from group I	121-122
V.4.	Romney ewes from hill country property (groups III, IV and V)	121-122

Plate		Between Pages
V.5.	Ewe being radiographed for pelvimetry. Lateral exposure	121-122
V.6.	Ewe being radiographed for pelvimetry. Ventro-dorsal exposure	121-122
V.7.	Ventro-dorsal radiograph of pelvis of a eutocous 3 year old ewe from group IV	131-132
V.8.	Ventro-dorsal radiograph of pelvis of a dystocous Romney stud ewe from group I	131-132