

Scalene dorsal muscle in corriedale sheeps

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Abstract

There is unclear information on veterinary anatomical literature about the dorsal scalene muscle and their presence in the ovine species. We think that the absence of this muscle can differentiate the source of the meat cuts of sheep and goats; due to in the goat the muscle is always present. We dissected 173 (26 male and 147 females) Corriedale sheeps and registered the presence, development and caudal insertion of scalenus dorsal muscle. The muscle was present only bilaterally in 14% and unilaterally in 15.5% of the 173 animals studied. We consider that this muscle as a vestigial and in state of regression. Therefore there is an important feature to distinguish a cut of meat of ovine and caprine, because the muscle is mostly absent in the ovine.

Keywords: anatomy, ovine, miology, muscle, dissection.

1 Introduction

There is unclear information on veterinary anatomical literature about the dorsal scalene muscle and their presence in the ovine species. In the calves (SMUTS and LE ROUX, 1975) the dorsal scalene muscle was a triangular muscle directed craniocaudally from the cranio-lateral surface of the fourth rib. The origin of the muscle was on the fourth cervical vertebra.

The scalene muscles of the caprine are anatomically similar to the bovine and the ovine is usually devoid of dorsal scalene; when the muscle exist there is a small pale band of some mm in width that not exceed the second rib (BARONE, 2000).

We think that the absence of this muscle can differentiate the source of the meat cuts of sheep and goats; due to in the goat the muscle is always present.

To our knowledge, the presence of the scalene dorsal muscle of the Corriedale ovine of both sex have not been published so far.

In this work we studied the presence and development of the dorsal scalenus muscle in male and female Corriedale sheeps of Uruguay and Argentina.

2 Materials and methods

We dissected 173 (26 male and 147 females) Corriedale sheeps used in anatomy courses at the University of Montevideo, Uruguay and University of Rio Cuarto, Argentina. The thoracic limbs were removed after section of all extrinsic muscles and the serratus ventralis that hide directly the region of our study. We documented the presence, development and caudal insertion of scalenus dorsal muscle.

Terms are used in agreement with the Nomina Anatomica Veterinaria (2005).

3 Results

The scalenus dorsalis of 173 Corriedale sheeps was present (bilaterally or unilaterally) in 51 animals (29.5%).

Only present bilaterally in 24 animals (14%), unilaterally in 27 (15.5%), only in the left side in 16 (9%), and only in the right side in 11 individuals (6%). The data appear in Table 1 (all animals, male and females).

In 26 males the muscle was present in 9 animals (34.5%), bilaterally in 6 (23%) and unilaterally in 3 (11.5%), only in the left side in 2 (7.5%), and only in the right side in 1 individuals (4%).

In 147 females the muscle was present in 42 animals (28.5%), bilaterally in 18 and unilaterally in 24 animals, only in the left side in 14 (9.5%), and only in the right side in 10 individuals (7%).

The scalenus dorsalis of the right side was inserted on the second rib in 20 animals, on the third rib in 14 animals, and in 1 sheep on the fourth rib.

The muscle of the left side was inserted on the second rib in 11 animals, on the third rib in 28 animals, and in 1 sheep on the fourth rib.

4 Discussion

In this work we studied the presence, development and caudal insertion of scalenus dorsal muscle, in male and female Corriedale sheeps.

In a European congress, Rutllant, Lopez-Bejacr, Lopez-Plan et al. (1997) reported in the 100 female cross Ripollesian sheep (an autochthonous ovine breed in Northeastern Spain) that the muscle was bilaterally present in 12 out of 100 animals.

In both works, Rutllant, Lopez-Bejacr, Lopez-Plan et al. (1997) and in our work, the scalene dorsal muscle was inserted over the second and third rib.

Rutllant, Lopez-Bejacr, Lopez-Plan et al. (1997) only studied females, in our study we used apart from the females, 26 males. However, differences between males and females are minimal.

Table 1. Presence and caudal insertion of scalenus dorsal muscle in male and female sheeps that presented this muscle.

Animal	Sex	Left side: presence	Left side: caudal insertion and wide	Right side: presence	Right side: caudal insertion and wide
1	Female	NO	-	YES	Third rib, 1 cm
2	Female	NO	-	NO	-
3	Female	YES	Fourth rib, 0.5 cm.	NO	-
4	Female	NO	-	NO	-
5	Female	YES	Second rib, caudally bifurcated.	YES	Fourth rib, 4 cm.
6	Female	NO	-	NO	-
7	Female	YES	Third rib	YES	Second rib, 1 cm.
8	Female	NO	-	YES	Third rib, 0.7 cm.
9	Female	NO	-	NO	-
10	Female	NO	-	NO	-
11	Female	NO	-	NO	-
12	Female	NO	-	NO	-
13	Female	NO	-	NO	-
14	Female	NO	-	NO	-
15	Female	NO	-	NO	-
16	Female	NO	-	NO	-
17	Female	NO	-	NO	-
18	Female	NO	-	NO	-
19	Female	NO	-	NO	-
20	Female	NO	-	NO	-
21	Female	NO	-	NO	-
22	Female	NO	-	NO	-
23	Female	YES	Third rib, 1.3 cm.	NO	-
24	Female	NO	-	YES	Second rib.
25	Female	YES	Third rib, 3.0 cm.	NO	-
26	Female	YES	Third rib, 0.4 cm.	NO	-
27	Female	YES	Second rib, caudally bifurcated.	YES	Second rib, caudally bifurcated.
28	Female	YES	Second rib.	YES	Second rib, 1.0 cm.
29	Female	YES	Second rib, 1.5 cm.	YES	Second rib, 1.5 cm.
30	Female	NO	-	NO	-
31	Female	NO	-	NO	-
32	Female	NO	-	NO	-
33	Female	NO	-	NO	-
34	Female	NO	-	NO	-
35	Female	NO	-	NO	-
36	Female	NO	-	NO	-
37	Female	NO	-	NO	-
38	Female	NO	-	NO	-
39	Female	YES	Third rib, caudally bifurcated.	YES	Third rib, caudally bifurcated.
40	Female	NO	-	NO	-
41	Female	YES	Third rib, 1.0 cm.	YES	Third rib, 0.06 cm.
42	Female	NO	-	NO	-
43	Female	NO	-	NO	-
44	Female	NO	-	YES	Third rib, 1.0 cm.
45	Female	NO	-	NO	-
46	Female	NO	-	NO	-
47	Female	NO	-	NO	-
48	Female	YES	Third rib, 1.3 cm.	YES	Third rib, 1.3 cm.
49	Female	NO	-	NO	-
50	Female	NO	-	NO	-
51	Female	NO	-	NO	-
52	Female	YES	Third rib, 2 cm.	NO	-
53	Female	NO	-	NO	-

Table 1. Continued ...

Animal	Sex	Left side: presence	Left side: caudal insertion and wide	Right side: presence	Right side: caudal insertion and wide
54	Female	NO	-	NO	-
55	Female	YES	Third rib, 0.04 cm.	NO	-
56	Female	NO	-	NO	-
57	Female	NO	-	NO	-
58	Female	NO	-	NO	-
59	Female	NO	-	NO	-
60	Female	YES	Third rib, 1.3 cm.	NO	-
61	Female	NO	-	NO	-
62	Female	NO	-	NO	-
63	Female	NO	-	NO	-
64	Female	NO	-	NO	-
65	Female	NO	-	NO	-
66	Female	NO	-	NO	-
67	Female	NO	-	NO	-
68	Female	NO	-	YES	Third rib.
69	Female	NO	-	NO	-
70	Female	NO	-	NO	-
71	Female	NO	-	YES	Second rib.
72	Female	NO	-	NO	-
73	Female	YES	Second rib, 1.5 cm.	YES	Second rib, 1.5 cm.
74	Female	NO	-	NO	-
75	Female	YES	Third rib, caudally bifurcated. 5.0 cm	YES	Third rib.
76	Female	NO	-	NO	-
77	Female	NO	-	NO	-
78	Female	NO	-	NO	-
79	Female	NO	-	NO	-
80	Female	NO	-	NO	-
81	Female	NO	-	NO	-
82	Female	NO	-	NO	-
83	Female	YES	Third rib, 2 cm.	YES	Second rib, 1.0 cm.
84	Female	NO	-	NO	-
85	Female	NO	-	NO	-
86	Female	NO	-	NO	-
87	Female	YES	Third rib, 1.0 cm.	YES	Second rib, 0.03 cm.
88	Female	YES	Second rib, 0.3 cm.	NO	-
89	Female	NO	-	NO	-
90	Female	NO	-	NO	-
91	Female	YES	Second rib, 0.5 cm.	YES	Second rib, trifurcated caudally.
92	Female	NO	-	YES	Second rib, 0.5 cm.
93	Female	YES	Third rib, 0.5 cm.	NO	-
94	Female	NO	-	NO	-
95	Female	NO	-	NO	-
96	Female	NO	-	NO	-
97	Female	NO	-	NO	-
98	Female	NO	-	NO	-
99	Female	YES	Third rib, bifurcado caudal., 5.0 cm.	YES	Third rib, 1.0 cm.
100	Female	NO	-	NO	-
101	Female	NO	-	NO	-
102	Female	NO	-	NO	-
103	Female	NO	-	NO	-
104	Female	NO	-	NO	-
105	Female	NO	-	NO	-
106	Female	NO	-	NO	-

Table 1. Continued ...

Animal	Sex	Left side: presence	Left side: caudal insertion and wide	Right side: presence	Right side: caudal insertion and wide
107	Female	NO	-	NO	-
108	Female	NO	-	NO	-
109	Female	NO	-	YES	Second rib, 1.0 cm.
110	Female	YES	Second rib, 1.5 cm.	YES	Second rib, 1.5 cm.
111	Female	NO	-	NO	-
112	Female	NO	-	NO	-
113	Female	NO	-	NO	-
114	Female	NO	-	NO	-
115	Female	NO	-	NO	-
116	Female	NO	-	NO	-
117	Female	NO	-	NO	-
118	Female	NO	-	NO	-
119	Female	NO	-	NO	-
120	Female	NO	-	NO	-
121	Female	NO	-	NO	-
122	Female	NO	-	NO	-
123	Female	NO	-	NO	-
124	Female	NO	-	NO	-
125	Female	NO	-	NO	-
126	Female	YES	Third rib, 1.3 cm.	NO	-
127	Female	NO	-	YES	Third rib.
128	Female	YES	Third rib, 2.0 cm.	NO	-
129	Female	YES	Third rib, 0.3 cm	NO	-
130	Female	YES	Second rib, 0.5 cm.	YES	Second rib, trifurcated caudally.
131	Female	NO	-	YES	Second rib, 0.5 cm.
132	Female	YES	Third rib, 0.5 cm.	NO	-
133	Female	YES	Third rib, 2.0 cm.	YES	Second rib, 1.0 cm.
134	Female	YES	Third rib, 1.0 cm.	YES	Second rib, 0.3 cm.
135	Female	YES	Second rib.	NO	-
136	Female	NO	-	NO	-
137	Female	NO	-	NO	-
138	Female	NO	-	NO	-
139	Female	NO	-	NO	-
140	Female	NO	-	NO	-
141	Female	NO	-	NO	-
142	Female	NO	-	NO	-
143	Female	NO	-	NO	-
144	Female	NO	-	NO	-
145	Female	NO	-	NO	-
146	Female	NO	-	NO	-
147	Female	NO	-	NO	-
148	Male	NO	-	NO	-
149	Male	NO	-	NO	-
150	Male	YES	Third rib, 2.0 cm.	YES	Third rib, 2 cm.
151	Male	NO	-	NO	-
152	Male	NO	-	NO	-
153	Male	NO	-	NO	-
154	Male	NO	-	YES	Third rib, 2.5 cm.
155	Male	YES	Third rib.	YES	Second rib, 0.2 cm.
156	Male	YES	Third rib, 1.5 cm, caudally bifurcated	NO	-
157	Male	NO	-	NO	-
158	Male	YES	Third rib, 2.0 cm.	YES	Third rib, 0.5 cm.
159	Male	YES	Third rib, 2.0 cm.	YES	Second rib, 2 cm.

Table 1. Continued ...

Animal	Sex	Left side: prescence	Left side: caudal insertion and wide	Right side: prescence	Right side: caudal insertion and wide
160	Male	NO	-	NO	-
161	Male	NO	-	NO	-
162	Male	YES	Third rib, 1.5 cm.	YES	Third rib, 0.5 cm.
163	Male	YES	Second rib, 2.0 cm.	NO	-
164	Male	YES	Third rib.	YES	Second rib, 2.0 cm.
165	Male	NO	-	NO	-
166	Male	NO	-	NO	-
167	Male	NO	-	NO	-
168	Male	NO	-	NO	-
169	Male	NO	-	NO	-
170	Male	NO	-	NO	-
171	Male	NO	-	NO	-
172	Male	NO	-	NO	-
173	Male	NO	-	NO	-
Females					
Insertion		Left side: caudal insertion and wide		Right side: caudal insertion and wide	
Bilaterally		Second rib, caudally bifurcated.		Fourth rib, 4 cm.	
Bilaterally		Third rib		Second rib, 1 cm.	
Bilaterally		Second rib, caudally bifurcated.		Second rib, caudally bifurcated.	
Bilaterally		Second rib.		Second rib, 1.0 cm.	
Bilaterally		Second rib, 1.5 cm.		Second rib, 1.5 cm.	
Bilaterally		Third rib, caudally bifurcated.		Third rib, caudally bifurcated.	
Bilaterally		Third rib, 1.0 cm.		Third rib, 0.06 cm.	
Bilaterally		Third rib, 1.3 cm.		Third rib, 1.3 cm.	
Bilaterally		Second rib, 1.5 cm.		Second rib, 1.5 cm.	
Bilaterally		Third rib, caudally bifurcated. 5.0 cm		Third rib.	
Bilaterally		Third rib, 2 cm.		Second rib, 1.0 cm.	
Bilaterally		Third rib, 1.0 cm.		Second rib, 0.03 cm.	
Bilaterally		Second rib, 0.5 cm.		Second rib, trifurcated caudally.	
Bilaterally		Third rib, bifurcado caudal., 5.0 cm.		Third rib, 1.0 cm.	
Bilaterally		Second rib, 1.5 cm.		Second rib, 1.5 cm.	
Bilaterally		Second rib, 0.5 cm.		Second rib, trifurcated caudally.	
Bilaterally		Third rib, 2.0 cm.		Second rib, 1.0 cm.	
Bilaterally		Third rib, 1.0 cm.		Second rib, 0.3 cm.	
Unilaterally		Fourth rib, 0.5 cm.		-	
Unilaterally		Third rib, 1.3 cm.		-	
Unilaterally		Third rib, 3.0 cm.		-	
Unilaterally		Third rib, 0.4 cm.		-	
Unilaterally		Third rib, 2 cm.		-	
Unilaterally		Third rib, 0.04 cm.		-	
Unilaterally		Third rib, 1.3 cm.		-	
Unilaterally		Second rib, 0.3 cm.		-	
Unilaterally		Third rib, 0.5 cm.		-	
Unilaterally		Third rib, 1.3 cm.		-	
Unilaterally		Third rib, 2.0 cm.		-	
Unilaterally		Third rib, 0.3 cm		-	
Unilaterally		Third rib, 0.5 cm.		-	
Unilaterally		Second rib.		-	
Unilaterally		-		Third rib, 1 cm	
Unilaterally		-		Third rib, 0.7 cm.	
Unilaterally		-		Second rib.	
Unilaterally		-		Third rib, 1.0 cm.	

Table 1. Continued ...

Females		
Insertion	Left side: caudal insertion and wide	Right side: caudal insertion and wide
Unilaterally	-	Third rib.
Unilaterally	-	Second rib.
Unilaterally	-	Second rib, 0.5 cm.
Unilaterally	-	Second rib, 1.0 cm.
Unilaterally	-	Third rib.
Unilaterally	-	Second rib, 0.5 cm.
Males		
Insertion	Left side: caudal insertion and wide	Right side: caudal insertion and wide
Bilaterally	Third rib, 2.0 cm.	Third rib, 2 cm.
Bilaterally	Third rib.	Second rib, 0.2 cm.
Bilaterally	Third rib, 2.0 cm.	Third rib, 0.5 cm.
Bilaterally	Third rib, 2.0 cm.	Second rib, 2 cm.
Bilaterally	Third rib, 1.5 cm.	Third rib, 0.5 cm.
Bilaterally	Third rib.	Second rib, 2.0 cm.
Unilaterally	Third rib, 1.5 cm, caudally bifurcated	-
Unilaterally	Second rib, 2.0 cm.	-
Unilaterally	-	Third rib, 2.5 cm.

In our work the muscle was present bilaterally only in 14% of the 173 animals studied.

5 Conclusion

We consider that this muscle as a vestigial and in state of regression. Therefore there is an important feature to distinguish a cut of meat of ovine and caprine, because the muscle is mostly absent in the ovine, about 85% not have the muscle.

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