Game of Research Season Four, 4June 2021

RETROSPECTIVE STUDY ON PATENT DUCTUS ARTERIOSUS: SURGICAL LIGATION IN SELECTED DOGS NOT TRATED BY AMPLATZ OCCLUDER

Monti Eleonora, Bufalari Antonello, Petoaca Alexandra, Di Meo Antonio, Caivano Domenico, Birettoni Francesco, Moretti Giulia

Dipartimento di Medicina Veterinaria, Università degli Studi di Perugia, Via San Costanzo, 4, 06126, Perugia, IT

+e-mail: eleonoramonti94@gmail.com

INTRODUCTION

Patent ductus arteriosus (PDA) is the most common congenital cardiovascular disease in dogs [1]. Left to right PDA can be treated by minimally invasive procedures or open thoracotomic surgery. When the size of the dog and duct's morphology allow it, Amplatz Canine Duct Occluder (ACDO) is the device of choice for closure of PDA because of its effectiveness and reduced invasiveness [2], but when the patient is too small or duct's morphology is not compatible with Amplatz device, thoracotomic PDA ligation is the proper approach [3].

OBJECTIVES

To evaluate all the intra-(IO) and postoperative (PO) complications related with thoracotomic PDA-ligation, as well as associated risk factors, in a definite category of affected dogs, which were excluded from mini-invasive techniques due to their size or duct morphology and, for this reason, characterized by higher risk factors than the average of the surgery-treated ones.

MATERIALS AND METHODS

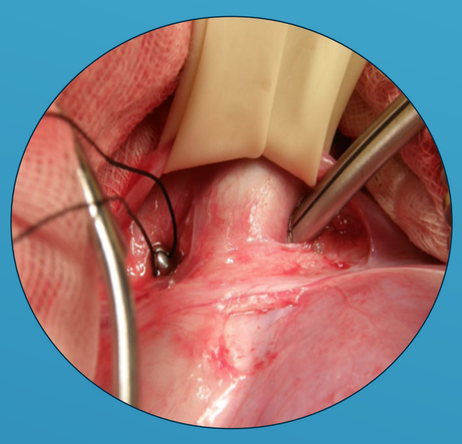


Fig1. Standard dissection technique. the right-angled forcep is passed from caudal to cranial, medial to the ductus to grasp the loop of ligature.

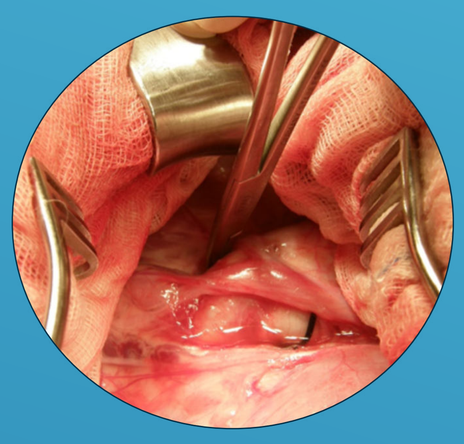


Fig 2. Jackson-Henderson dissection techniqueThe area dorsal and medial to the aorta has been dissected.

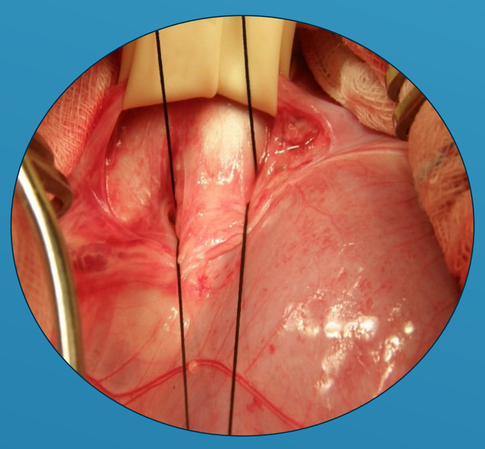


Fig 3. The loop is divided to obtain two individual strains.

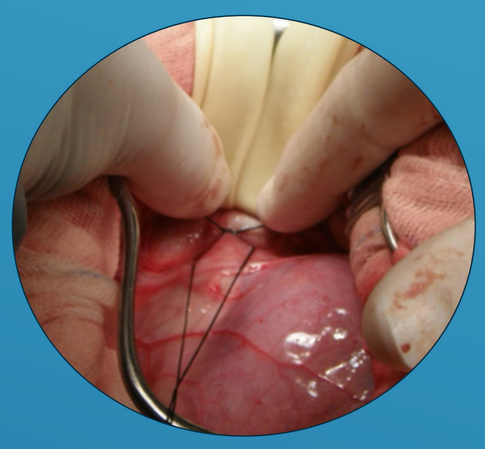


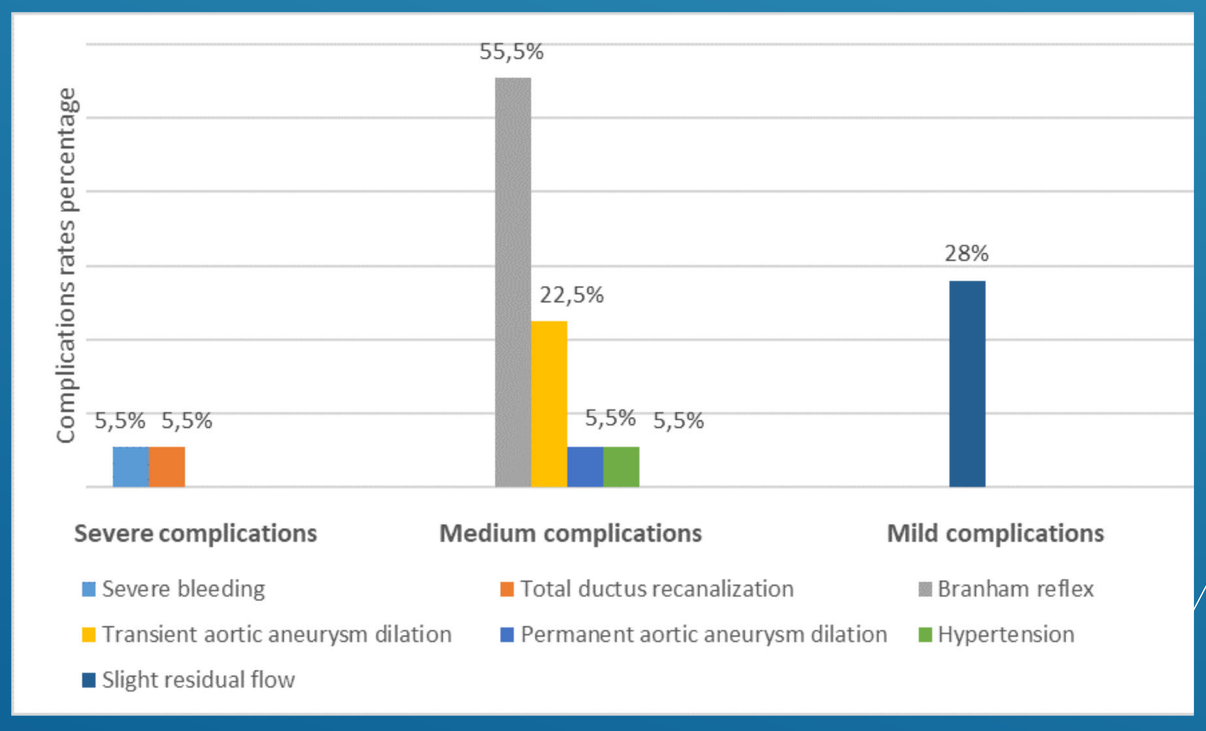
Fig 4. The ligature at the aortic end of the ductus is tied first.

Table 1. Breed, Gender (M, Male; F, Female), Age and Weight of 19 cases of PDA ligation. Case 13 and 14 were the same dog, which required a second surgery due to the total ductus recanalization.

Cases	Breed	Gender	Age (months)	Weight (kg)
1	Miniature Poodle	M	4	2,7
2	German Shepherd	F	4	15,8
3	Deutsche Kurzhaar	F	2	3,3
4	Lagotto	M	3	4
5	Pomeranian	F	7	1,5
6	Maltese	F	8	2,1
7	Mixed breed	F	2,5	1,2
8	German Shepherd	F	3	6,8
9	Chihuahua	F	3	0,8
10	Deutsche Spitz	F	9	4,3
11	Pomeranian	M	6	2,3
12	Mixed breed	M	3	2,6
13	Dachshund	F	12	4,4
14	Dachshund	F	13	3,8
15	Chihuahua	F	12	1,7
16	Pomeranian	F	3	2,8
17	Maltese	M	7	2,6
18	Mixed breed	F	24	13
19	Pomeranian	F	5	1,4

Fig 4 Several types of Satinsky hemostats were used in our study for the dissection of the patent ductus arteriososus.

RESULTS



CONCLUSIONS

Patent ductus arteriosus closure confers important survival benefits so, when intravascular PDA occlusion with ACDO in not achievable, thoracotomic PDA ligation must be performed. A number of complications are related to this surgical approach, the risk of which can be reduced through the timeliness of surgery and a clear preoperative awareness of ductal morphology: this allows to predict all the risk factors that can lead to complications, and therefore, to plan the correct surgical procedure and to pick the right tools to carry it out.

REFERENCES

[1] Buchanan James W, Patent Ductus Arteriosus Morphology, Pathogenesis, Types and Treatment. Journal of Veterinary Cardiology, Vol.3, No. 1, May 2001. [2] Singh M. K., Kittleson M. D., Kass P. H. and Griffiths L. G., Occlusion Devices and Approaches in Canine Patent Ductus Arteriosus: Comparison of Outcomes, J Vet Intern Med 2012; 26:85–92. [3] Orton EC, Monnet E, 2017, Small animal thoracic surgery, Wiley-blackwell.