

DISSEÇÃO ISOLADA DA AORTA ABDOMINAL – UM ANIMAL DIFERENTE – SÉRIE DE CASOS

ISOLATED ABDOMINAL AORTIC DISSECTION – A DIFFERENT ANIMAL? – CASE SERIES

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RESUMO

Introdução: A disseção isolada da aorta abdominal (DIAA) é um evento relativamente raro e não estão definidas indicações claras para tratamento. A sua história natural é pouco compreendida devido a essa raridade e ao facto de a maioria dos cirurgiões terem um limiar reduzido para intervenção nestes doentes. A cirurgia aberta representa o tratamento clássico mas a intervenção endovascular apresenta aceitação na grande generalidade dos centros cirúrgicos sendo atualmente a opção mais adotada. As maiores séries de doentes descritas na literatura provêm da Ásia apresentando a maior delas uma amostra de apenas 33 casos enquanto que nas séries ocidentais a maior descreve apenas 21 doentes.

Métodos: Estudo retrospectivo, observacional, de doentes com DIAA tratados, por cirurgia aberta ou endovascular, num Centro Cirúrgico.

Resultados: Descrevemos oito doentes com DIAA que foram submetidos a cirurgia na nossa Instituição (quatro homens e quatro mulheres. A mediana de idades à apresentação era de 78 anos e todos os doentes eram assintomáticos. O diâmetro aórtico mediano à apresentação era de 30mm (14-85mm). Todos os doentes, com exceção de um, foram submetidos a tratamento endovascular. Três doentes foram tratados com endopróteses aórticas bifurcadas, em três doentes foram implantadas endopróteses tubulares únicas (extensores ilíacos de endopróteses aórticas bifurcadas) e um doente foi submetido a uma reconstrução endovascular da bifurcação aórtica (“CERAB”) por doença arterial obstrutiva coexistente da bifurcação aórtica. Não ocorreram mortes per-operatórias. O tempo mediano de seguimento dos doentes foi de 6,2 anos (2 meses – 13 anos). Foi necessária reintervenção tardia em um doente, 8 anos após a cirurgia inicial, devido a uma endofuga tipo 1.

Conclusão: De acordo com a nossa experiência a intervenção endovascular representa um tratamento seguro e durável na DIAA, no entanto, um seguimento prolongado dos doentes é obrigatório. São necessários estudos de maior dimensão com tempos de seguimento alargados para melhor compreender esta doença.

Palavras-chave

Aorta; Disseção Aórtica; Técnicas Endovasculares; Aneurisma da Aorta Abdominal

ABSTRACT

Introduction: Isolated abdominal aortic dissection (IAAD) is a relatively rare event and precise indications for treatment aren't clearly defined. Its natural history is not fully understood due to the rarity of the disease and to the fact that most surgeons have a low threshold to intervene in these patients. Open surgery represents the classical treatment but endovascular intervention has gained wide acceptance in most centers and is now the most frequently adopted treatment option. The largest series of treated patients are from Asian centers with the largest of them comprising only 33 cases whereas in western surgical centers the largest series contains only 21 patients.

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Methods: Single center, retrospective, observational, study of patients with IAAD who were treated with open or endovascular surgery.

Results: We describe eight patients with IAAD who underwent treatment in our institution (four males and four females). Median age at presentation was 78 years and all patients were asymptomatic. Median aortic diameter at presentation was 30mm (14-85mm). All but one patient underwent endovascular treatment. Three patients were treated with bifurcated aortic endografts, three patients had a single stent-graft (iliac limbs of aortic endografts) implanted and one patient underwent a CERAB procedure for coexistent stenotic disease of the aortic bifurcation. There were no perioperative deaths. Median follow-up was 6,2 years (2 months-13 years). Late reintervention was needed in one patient, 8 years after initial surgery, due to a type 1 endoleak.

Conclusion: According to our experience, endovascular intervention represents a safe and durable treatment option in IAAD, however, long-term follow-up is mandatory. Larger studies with longer follow-ups are needed to understand this disease.

Keywords

Aorta; Aortic Dissection; Endovascular Techniques; Abdominal Aortic Aneurysm

INTRODUCTION

The thoracic aorta is the most commonly involved aortic section when acute aortic dissection (AD) occurs. It may also extend to the abdominal aorta⁽¹⁾. However, acute isolated abdominal aortic dissection (IAAD) is a relatively rare event, representing only 1% to 4% of the AD cases, with only 18 cases reported in the International Registry of Acute Aortic Dissection (IRAD) between 1996 and 2003^(2, 3). It can occur spontaneously or in association with trauma and surgical procedures (especially endovascular)⁽⁴⁻⁶⁾. The association with atherosclerosis or an iatrogenic etiology is stronger for acute IAAD than for classical Stanford type B AD. Acute IAAD most commonly presents with abdominal pain, visceral ischemia (including acute renal failure) and limb ischemia. Mean reported age of presentation is 67.7 ± 13.3 years⁽²⁾, similar to that of classical type B aortic dissection. Medically treated chronic dissection tends to progress with aneurysmal degeneration. Due to wall weakening induced by chronic dissection, with higher rupture risk, many surgeons advise earlier intervention in dissecting aneurysms, usually when they reach a diameter of 3 cm^(4, 6, 7). In result of the scarcity of reported cases, management of IAAD is still a matter of controversy. We describe a series of eight cases of IAAD who underwent surgical treatment. These cases occurred during a time frame of 13 years and no other cases of IAAD were described in our institution during this period.

METHODS

This is a single center, retrospective, observational, study of patients with IAAD who were treated with open or endovascular surgery. All patients diagnosed with IAAD and treated during the period comprised between 2008 and 2021 were included. The defined primary outcome was early mortality (<30 days). Secondary outcomes analyzed were complication and reintervention rates. Statistical analyses were performed using SSPS software (Statistical Package for the Social Sciences, version 20.0, SSPS Inc, Chicago, IL, USA). Results were expressed as mean ± standard deviation (SD), or median ± interquartile range (IQR).

RESULTS

A total of eight patients (four males and four females) were diagnosed and treated for IAAD between 2008 and 2021 in our Institution. Median follow-up was 6,2 years (2 months-13 years). Median age at presentation was 78 (IQR= 58.2 – 84.5) years and all patients were asymptomatic. Hypertension had a prevalence of 50% and half of the patients were current or former smokers. Median aortic diameter at presentation was 30mm (14-85mm).

All but one patient underwent endovascular treatment, this patient was a young (68 years) good risk patient who underwent open surgery (aortobiliac bypass). Three patients were treated with bifurcated aortic endografts, three patients had a single stent-graft (iliac limbs of aortic endografts) implanted and one patient underwent a CERAB procedure for coexistent stenotic disease of the aortic bifurcation.

Of the patients treated with only one iliac limb (FIGURE 1) one had IAAD of a short infrarenal aortic segment with enough proximal (infrarenal) and distal (above the aortic bifurcation) neck lengths (FIGURES 2 AND 3) and the other two had small aortic dissecting aneurysm with similar, favorable, anatomic conditions.

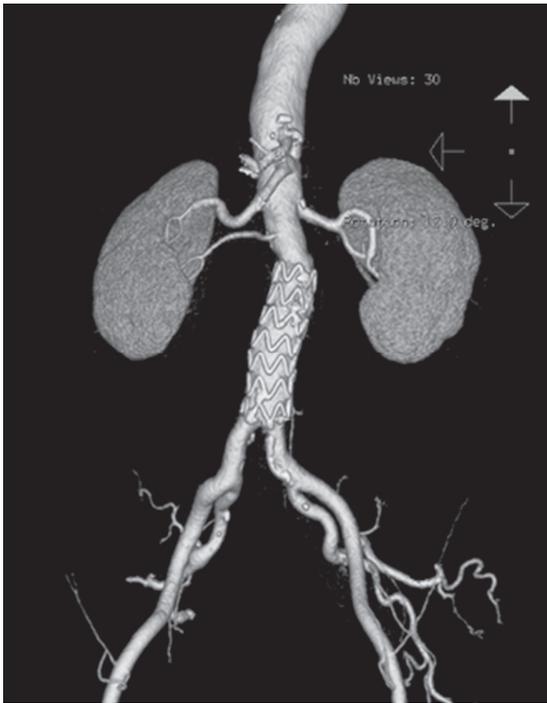
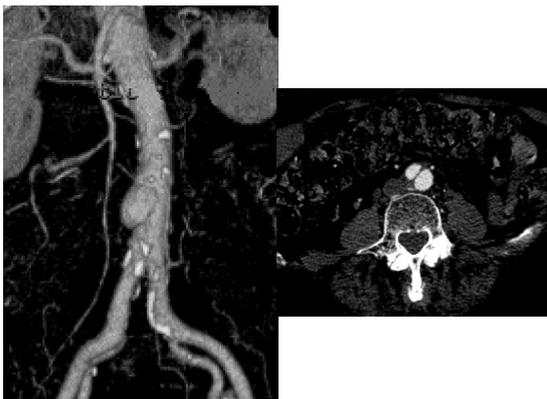


Figure 1 Saccular dissecting aortic aneurysm treated with an Endurant II (Medtronic Vascular, USA) iliac limb 20x80mm trimmed down to 70mm length.



Figures 2 and 3 Isolated abdominal aortic dissection with aneurysmal degeneration with saccular morphology.

There were no perioperative deaths or early postoperative complications. Late reintervention was needed in one patient. During the 8th year post-EVAR this

patient had a routine follow-up CTA which revealed an endoleak (suggestive of type III EL) and growth of aneurysm diameter. Repeated EVAR was chosen to treat this late complication, intraoperative angiography revealed a type Ia endoleak which was treated with an aorto-uni-iliac stent graft (to ensure that a possible associated type III EL would be treated as well) and cross-over femoro-femoral bypass. Two early surgical reinterventions were performed to drain groin hematomas after this surgery. At the 12th year of follow-up (four years after reintervention), the patient was asymptomatic and angioCT showed aneurysm diameter stabilization without endoleaks.

DISCUSSION

Treatment strategies for acute IAAD include open surgery, endovascular intervention or medical treatment. The results from a meta-analysis published by Jonker et al⁽⁶⁾ suggest that an early aggressive (open or endovascular surgery) may be associated with improved survival. However, this is a retrospective study with only 19 patients treated with endografts, therefore, in our institution, we still manage the AIAAD with medical treatment and treat these patients in case of ischemic complications.

Despite the good historical results described for open surgery,^(1, 2, 6) especially in good risk patients, the evolution of endovascular therapies has allowed the effective treatment of high operative risk patients with good long-term results^(9, 10). In fact, the excellent results obtained by some centers supports endovascular techniques as the first-line treatment in all patients given the presence of adequate anatomy⁽¹⁰⁾. Our series includes one patient that was preemptively treated (asymptomatic and without aneurysm degeneration), and this is somewhat controversial, however, it was decided to perform the surgery considering the patient's reduced risk and the low risk and complexity of the procedure itself. In fact, a recent large meta-analysis⁽¹¹⁾ of 482 patients confirmed a low long-term mortality with a surveillance strategy offering surgery for patients who develop symptoms or an aneurysm, however, this same publication underlines the significant rate of late intervention (18%) and also the low mortality rate of patients who underwent endovascular treatment (2%). Moreover, a retrospective study of more than 200 patients treated conservatively and followed with routine angioCT showed that only 1.4% of the patients had positive aortic remodeling with medical therapy alone⁽¹²⁾.

In our opinion, this may justify a low threshold for intervention in patients with IAAD as long as they are good candidates for endovascular treatment.

We describe the treatment of three patients with a single stentgraft (all of them with iliac limbs from conventional aortic endografts), this is closely related to the fact that early intervention in infrarenal IAAD (but after the acute phase) is facilitated by the presence of a normal size aorta at the infrarenal neck and above the aortic bifurcation. This surgical strategy has the advantage of a single, lower profile, vascular access a shorter procedure duration and preserves the native aortic bifurcation allowing easier future endovascular or open reinterventions.

This is a retrospective study with a small number of patients which limits the external validity of its findings.

CONCLUSION

Infrarenal IAAD is a rare pathology and precise clinical indications for treatment in asymptomatic patients are, therefore, unknown. In patients with adequate anatomy endovascular treatment is safe and effective as our case series, and other published works, shows. In some patients with short segment dissections tailored treatment with short stent-grafts may allow a simple, low risk, approach. Early, post-acute, intervention may be warranted in all cases (even asymptomatic) considering the low risk of complications in this group of patients.

BIBLIOGRAFIA

1. Mantelas M, Antonitsis P, Kaitzis D, Hatzibaloglou A, Moros I. Spontaneous isolated dissection of the abdominal aorta: single-center experience. *Interact Cardiovasc Thorac Surg.* 2009, 8, pp. 398-401.
2. Trimarchi S, Tsai T, Eagle KA, Isselbacher EM, Froehlich J, Cooper JV, et al. International Registry of Acute Aortic Dissection (IRAD) investigators. Acute abdominal aortic dissection: insight from the International Registry. *J Vasc Surg.* 2007, 46, pp. 913-9.
3. Roberts CS, Roberts WC. Aortic dissection with the entrance tear in abdominal aorta. *Am Heart J.* 1991, 121, pp. 1834-5.
4. Farber A, Lautherbach SR, Wagner WH, Cossman DV, Long B, Cohen JL, et al. Spontaneous infrarenal abdominal aortic dissection presenting as claudication: case report and review of the literature. *Ann Vasc Surg.* 2004, 18, pp. 4-10.
5. Hirst A, Jonhs V, Kime W. Dissecting aneurysms of the aorta: a review of 505 cases. *Medicine.* 1958, 37, pp. 217-79.
6. Farber A, Wagner WH, Cossman DV, Cohen JL, Walsh DB, Fillinger MF, et al. Isolated dissection of the abdominal aorta: clinical presentation and therapeutic options. *J Vasc Surg.* 2002, 36, pp. 205-10.
7. Cambria RP, Brewster DC, Mancure AC, Steinberg FL, Abbott WM. Spontaneous aortic dissection in the presence of coexistent or previously repaired atherosclerotic aortic aneurysm. *Ann Surg.* 1988, 208, pp. 619-24.
8. Jonker FH, Schlösser FJ, Moll FL, Muhs BE. Dissection of the abdominal aorta. Current evidence and implications for treatment strategies: a review and meta-analysis of 92 patients. *J Endovasc Ther.* 2009, 16, pp. 71-80.
9. Kouvelos GN, Vourliotakis G, Arnaoutoglou E, Papa N, Avgos S, Peroulis M, et al. Endovascular treatment for isolated acute abdominal aortic dissection. *J Vasc Surg.* 2013, 58, pp. 1505-11.
10. Machado R, Rego D, Loureiro L, Almeida R. Endovascular treatment of isolated chronic abdominal aortic dissection. *Acta Med Port.* 2016, Vol. 29, pp. 224-227.
11. Jawadi N, Bisdas T, Torsello G, Stavroulakis K, Donas KP. Endovascular treatment of isolated abdominal aortic dissections: long-term results. *J Endovasc Ther.* 2014, 21, pp. 324-8.
12. Liu Y, Han M, Zhao J, et al. Systematic review and meta-analysis of current literature on isolated abdominal aortic dissection. *Eur J Vasc Endovasc Surg.* 2020, 59, pp. 545-556.
13. Kang JH, Kim YW, Heo SH, Woo SY, Park YJ, Kim DI, et al. Treatment strategy based on the natural course of the disease for patients with spontaneous isolated abdominal aortic dissection. *J Vasc Surg.* 2017, 66, pp. 1668-1678.