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Management of Complete Aortic Dissection in a 65-Year-Old Male: A Case Report

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ABSTRACT

Background: Aortic dissection is a life-threatening condition characterized by a tear in the aortic wall that separates its layers. Complete aortic dissection involves both the ascending and descending aorta, necessitating prompt diagnosis and intervention. We present a case report of a 65-year-old male with a complete aortic dissection and discuss the challenges and management strategies employed in his treatment.

Case Presentation: A 75-year-old male with a history of hypertension presented to the emergency department with sudden-onset severe chest and back pain. Physical examination revealed unequal blood pressure readings in both arms, suggesting aortic involvement. Urgent computed tomography angiography (CTA) and TTE confirmed the diagnosis of a complete aortic dissection extending from the aortic root to the iliac arteries. The patient was promptly transferred to the operating room for surgical intervention.

Discussion: The management of complete aortic dissection requires a multidisciplinary approach involving cardiovascular surgeons, interventional radiologists, and anesthesiologists. In this case, emergency surgery was performed to address the life-threatening condition. Aortic root replacement and ascending aorta repair were performed, followed by stent graft placement in the descending aorta to exclude the false lumen. Postoperative care involved close monitoring for potential complications such as renal dysfunction, paraplegia, and cardiac ischemia.

Conclusion: Prompt diagnosis and appropriate surgical intervention are crucial in the management of complete aortic dissection. Collaboration among healthcare professionals is essential for optimizing patient outcomes. Further studies are warranted to assess long-term outcomes and identify strategies for preventing complications in patients with complete aortic dissection.

KEYWORDS: aortic dissection, complete, surgical intervention, case report, multidisciplinary approach

INTRODUCTION

Aortic dissection is a life-threatening cardiovascular emergency characterized by the formation of a false lumen within the aortic wall due to a tear or disruption of the intimal layer. It is a condition that demands prompt diagnosis and intervention to prevent catastrophic complications such as aortic rupture, organ malperfusion, and death (1). Aortic dissection can involve various segments of the aorta, including the ascending aorta, arch, and descending aorta. When the dissection affects both the ascending and descending aorta, it is referred to as a complete aortic dissection (2).

The incidence of aortic dissection is estimated to be around 2 to 3 cases per 100,000 individuals per year (3), making it a relatively rare but critical condition. Complete aortic dissection accounts for a significant proportion of cases, and its management poses unique challenges due to the extensive involvement of the aortic wall. Successful treatment relies on a multidisciplinary approach involving cardiovascular surgeons, interventional radiologists, anesthesiologists, and other specialists working collaboratively to ensure timely diagnosis, risk stratification, and appropriate therapeutic strategies (4).

Advancements in diagnostic imaging techniques, such as computed tomography angiography (CTA), have revolutionized the evaluation and classification of aortic dissection. CTA enables accurate visualization of the dissected aorta, precise anatomical assessment, and identification of complications, helping guide treatment decisions (5). Additionally, advances in endovascular

techniques, such as thoracic endovascular aortic repair (TEVAR), have expanded the armamentarium for managing aortic dissections, offering less invasive alternatives to open surgical repair.

However, despite advances in diagnostic modalities and treatment options, complete aortic dissection remains a complex and high-risk condition (2). Optimal management strategies depend on individual patient characteristics, including the location and extent of the dissection, the presence of complications, and patient-specific factors. Furthermore, long-term outcomes and potential complications following surgical or endovascular interventions necessitate close postoperative monitoring and follow-up.

In this paper, we present a case report of a 65-year-old male with a complete aortic dissection, discussing the challenges encountered during diagnosis and the multidisciplinary management strategies employed. We highlight the importance of rapid and accurate diagnosis, the role of advanced imaging modalities, and the selection of appropriate treatment approaches based on individual patient factors. Additionally, we explore the evolving landscape of endovascular interventions and their impact on patient outcomes. Through this case report, we aim to contribute to the existing body of knowledge on the management of complete aortic dissection and provide insights into the complexity and nuances of its treatment.

CASE PRESENTATION

In 31 December 2022, a 75-year-old male with a history of hypertension presented to the emergency department with sudden-onset severe chest and back pain. The patient described the pain as tearing in nature and radiating to the back. Physical examination revealed unequal blood pressure readings in both arms, with a difference of 30 mmHg systolic pressure, suggesting aortic involvement. The ECG was normal.

Given the clinical suspicion of aortic dissection, urgent diagnostic imaging was initiated. Computed tomography angiography (Figure1) was performed, revealing a complete aortic dissection extending from the aortic root to the iliac arteries. The dissection involved both the ascending and descending aorta, with the presence of a false lumen. The entry tear was identified in the proximal ascending aorta. Notably, no signs of impending rupture or malperfusion were observed.

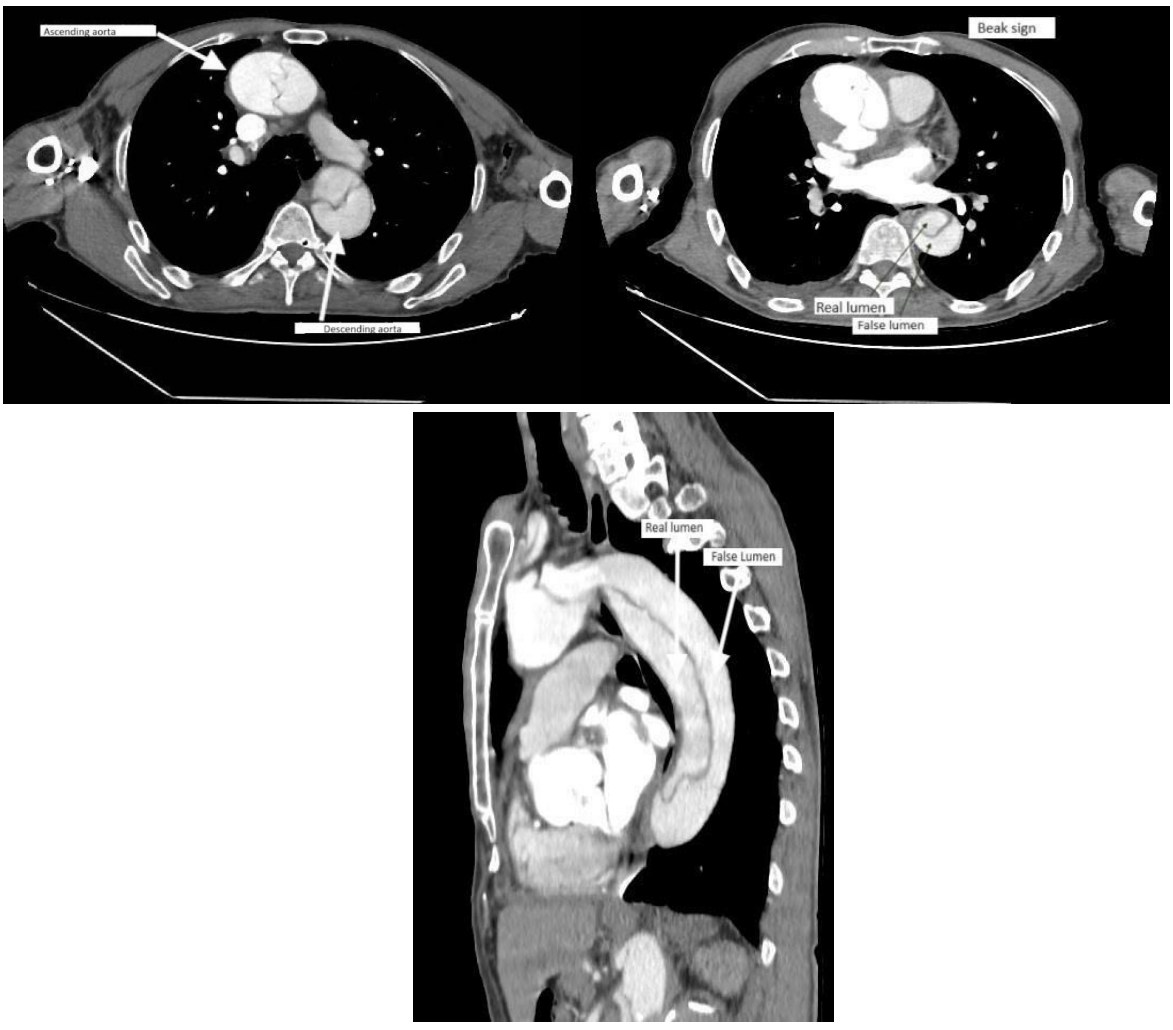

Figure 1: CT scan showing the extend of the aortic dissection with a beak sign

TTE (Figure2) was performed too shows an intimal flap.

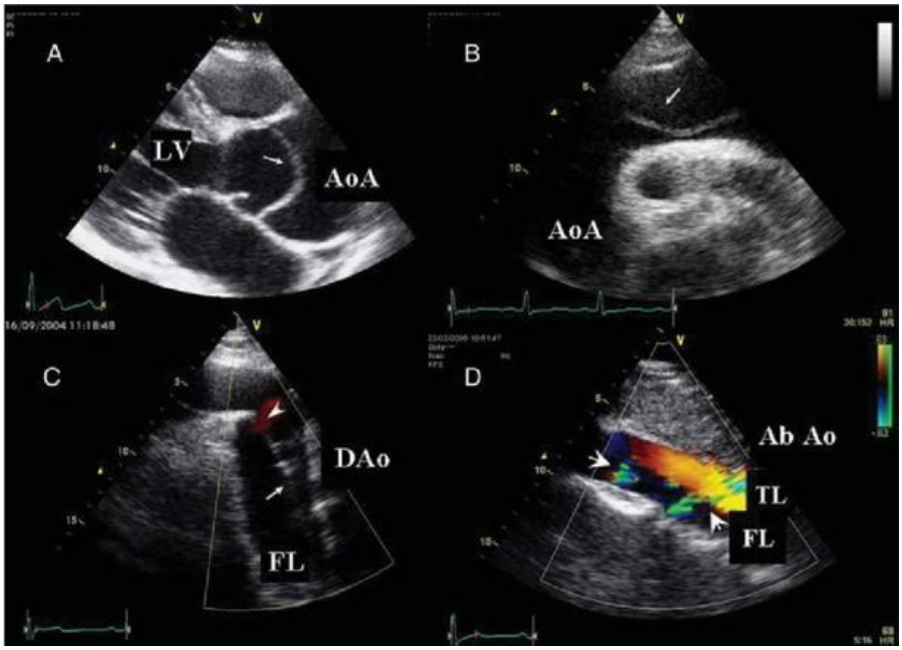

Figure 2: TTE showing: Intimal flap (arrows) and two lumina are visualized in: (A) aortic root, (B) aortic arch and distal ascending aorta, (C) proximal descending aorta (arrowhead shows the entry tear), and (D) dissection of abdominal aorta. Color Doppler helps to identify the true lumen (TL). Arrowheads signal secondary communications.

Upon confirming the diagnosis of complete aortic dissection, the patient's condition was deemed life-threatening, necessitating immediate surgical intervention. The patient was promptly transferred to the operating room, where a multidisciplinary team, including cardiovascular surgeons, anesthesiologists, and perfusionists, was assembled to manage the complex procedure.

Under general anesthesia and with cardiopulmonary bypass support, a median sternotomy was performed to access the ascending aorta. Aortic root replacement and ascending aorta repair were conducted, involving the excision of the intimal tear and the placement of a synthetic graft to restore aortic continuity. Special attention was given to ensure proper hemostasis and prevent ongoing dissection.

Following the ascending aorta repair, the focus shifted to the descending aorta. Thoracic endovascular aortic repair (TEVAR) was considered as an adjunctive treatment to further stabilize the dissected aorta and seal off the false lumen. With the guidance of intraoperative fluoroscopy and angiography, a stent graft was successfully deployed in the descending aorta, excluding the false lumen and promoting blood flow through the true lumen.

Postoperative care involved close monitoring in the intensive care unit (ICU) to assess vital signs, hemodynamic stability, and potential complications. Serial imaging studies, including chest X-rays and CTA, were performed to evaluate the position and integrity of the graft and to monitor for any signs of endoleak or graft-related complications.

The patient's recovery in the ICU was uneventful, with no immediate postoperative complications observed. Extensive postoperative counseling and education were provided to the patient and their family regarding lifestyle modifications, adherence to medication regimens, and the importance of regular follow-up visits.

DISCUSSION

Aortic dissection is a life-threatening condition that demands urgent intervention to prevent devastating complications. Complete aortic dissection, involving both the ascending and descending aorta, presents unique challenges in terms of diagnosis, treatment, and long-term management. In this case report, we discuss the complexities encountered in the management of a 75-year-old male with a complete aortic dissection and explore the relevant literature to provide insights into the optimal management strategies.

The diagnosis of aortic dissection requires a high index of suspicion and prompt diagnostic imaging. In our case, computed tomography angiography (CTA) played a pivotal role in confirming the diagnosis and evaluating the extent of the dissection. CTA has emerged as the gold standard imaging modality due to its high sensitivity and specificity in detecting aortic dissection, as reported in several studies (6,7). It provides detailed anatomical information, aids in risk stratification, and guides treatment decisions.

Surgical intervention remains the cornerstone of treatment for complete aortic dissection, especially in cases with acute or subacute presentations. In our case, the patient underwent a two-stage surgical procedure involving aortic root replacement and ascending aorta repair followed by thoracic endovascular aortic repair (TEVAR) to address the descending aorta. This combined approach aimed to eliminate

the primary tear, restore normal blood flow, and reduce the risk of further complications.

The selection of the surgical technique depends on various factors, including the patient's clinical status, anatomical considerations, and surgeon expertise. Aortic root replacement is typically indicated to address the primary tear and prevent aortic root dilatation and regurgitation (8). Open surgical repair allows for direct visualization and repair of the dissected segments but carries the risk of significant morbidity and mortality, particularly in cases with extensive dissection or complicated anatomy.

The advent of endovascular techniques, such as TEVAR, has revolutionized the management of aortic dissection. TEVAR offers a less invasive alternative to open surgery and has demonstrated promising outcomes in selected cases, particularly in the treatment of complicated dissections involving the descending aorta (9). It provides a durable seal of the false lumen, reduces the risk of complications, and offers potential benefits in terms of perioperative morbidity and mortality.

However, careful patient selection and long-term surveillance are essential to evaluate the durability and effectiveness of TEVAR in complete aortic dissections.

Postoperative care and long-term follow-up play crucial roles in the management of patients with complete aortic dissection. Regular imaging surveillance is necessary to monitor the progression of aortic dilatation, detect potential complications such as endoleaks or graft-related issues, and guide further interventions if required. Close collaboration between the cardiovascular team, primary care physicians, and patients is vital in ensuring adherence to medication regimens, blood pressure control, and lifestyle modifications to minimize the risk of recurrent dissection or aortic complications.

Although our case report highlights the successful management of a complete aortic dissection, it is important to acknowledge that the management strategies and outcomes may vary depending on individual patient factors, institutional expertise, and available resources. Additionally, long-term outcomes and comparative studies assessing different treatment modalities in complete aortic dissections are warranted to establish evidence-based guidelines.

In conclusion, the management of complete aortic dissection requires a multidisciplinary approach, including skilled cardiovascular surgeons, interventional radiologists, and anesthesiologists. Early diagnosis, timely surgical intervention, and appropriate long-term surveillance are essential for optimizing patient outcomes. Further research and collaboration are needed to refine treatment strategies and establish standardized protocols for the management of complete aortic dissections.

Long-term management for complete aortic dissection involves regular surveillance imaging to monitor for potential complications, including graft-related issues, aneurysmal degeneration, or recurrent dissection. The patient was advised to maintain regular follow-up appointments with the cardiovascular team to ensure ongoing assessment and appropriate management.

CONCLUSION

This case highlights the critical nature of complete aortic dissection and the need for rapid diagnosis and prompt surgical intervention. The successful management of complete aortic dissection requires a multidisciplinary approach, including skilled cardiovascular surgeons, anesthesiologists, and specialized perioperative care. Continuous monitoring and long-term follow-up are essential to detect and manage potential complications and ensure optimal patient outcomes.

REFERENCES

1. Erbel R, Aboyans V, Boileau C, et al. 2014 ESC Guidelines on the diagnosis and treatment of aortic diseases: Document covering acute and chronic aortic diseases of the thoracic and abdominal aorta of the adult. Eur Heart J. 2014;35(41):2873-2926.
2. Nienaber CA, Powell JT. Management of acute aortic syndromes. Eur Heart J. 2012;33(1):26-35b.
3. Tsai TT, Trimarchi S, Nienaber CA. Acute aortic dissection: perspectives from the International Registry of Acute Aortic Dissection (IRAD). Eur J Vasc Endovasc Surg. 2009;37(2):149-159.
4. Rylski B, Hoffmann I, Beyersdorf F, et al. Acute type A aortic dissection extending beyond ascending aorta: limited or extensive distal repair. J Thorac Cardiovasc Surg. 2014;147(1):318-324.
5. Zhu Y, Wang Z, Guo Y, et al. Systematic review and meta-analysis of mortality and stroke outcomes for hybrid aortic arch replacement. Ann Vasc Surg. 2019;58:407-416.
6. Hagan PG, Nienaber CA, Isselbacher EM, et al. The International Registry of Acute Aortic Dissection (IRAD): new insights into an old disease. JAMA. 2000;283(7):897-903.
7. Evangelista A, Isselbacher EM, Bossone E, et al. Insights from the International Registry of Acute Aortic Dissection: a 20-year experience of collaborative clinical research. Circulation. 2018;137(17):1846-1860.
8. Svensson LG, Kouchoukos NT, Miller DC, et al. Expert consensus document on the treatment of descending thoracic aortic disease using endovascular stent-grafts. Ann Thorac Surg. 2008;85(1 Suppl):S1-S41.
9. Tsai TT, Trimarchi S, Nienaber CA. Acute aortic dissection: perspectives from the International Registry of Acute Aortic Dissection (IRAD). Eur J Vasc Endovasc Surg. 2009;37(2):149-159.