

# Epidemio-Clinical, Therapeutic and Evolutive Aspects of Aortic Dissection in the Cardiology Department in Poin "G" Hospital University Center Bamako

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## Abstract

Objective: The work aimed at describing an epidemioclinical, therapeutic and evolutionary characteristics of patients hospitalized for aortic dissection in the cardiology department in Point "G" Hospital University Center in Bamako-Mali. Methodology: It was a descriptive cross-sectional study from January 2010 to February 2017 in the CHU Point G cardiology department, including all patients hospitalized during this period. Results: Of 6912 hospitalized patients, 23 patients were concerned by aortic dissection. The prevalence of aortic dissection was 0.33%. The most affected age group was 50 - 69 (43.5%) of patients. The predominance was male with a sex ratio of 4.75. The cardiovascular risk factors were high blood pressure (73.9%) and smoking (60.9%). The major functional signs were chest pain (65.2%) and dyspnea (65.2%). Asphygmy (56.5%) and breath of aortic insufficiency (60.9%) were the dominant physical signs. The electrocardiogram recorded sinus tachycardia with 86.9% of patients. The radiographic of the frontal thorax showed mediastina widening (73.9%). At echocardiography, dilatation of the ascending aorta was described with 73.9% and the intimal veil (47.8%). Pericardial effusion was observed with 26.1% of patients. In the thoracic angioscan, the aortic dissection gave 43.5% for type A and 56.5% for type B. The aneurysm of the aorta was abdominal with 21.7%, ascending portion (13.0%) and descending with 8.7%. Complications were dominated by heart failure (47.8%) and aneurysm of the aorta (34.8%). The lethality was 52.2%. **Conclusion:** Aortic dissection is a medical and surgical emergency with poor prediction.

#### **Keywords**

Aortic Dissection, Cardiology, Point G Hospital

# **1. Introduction**

Aortic dissection is the tearing intima of the aorta. This phenomenon is rare and serious because it can lead to complete rupture of the aorta and certain death [1] [2]. Its prevalence in Europe is 0.5 - 5/100,000 inhabitants/year [3] and 0.03% on the Asian Continent in Taiwan [4]. In Africa, its incidence is estimated at 0.24% in Senegal [5]. In Mali according to a study by Cisse [6] the aortic dissection had a hospital frequency of 0.039% at the hospital Mère-Enfant "le Luxembourg". The absence of recent epidemiological data and the increasing lethality of aortic dissection justify the present study aiming at describing the epidemiclinical, therapeutic and evolutionary characteristics of patients hospitalized for aortic dissection in the cardiology department in Point G Hospital University Center in Bamako—Mali.

## 2. Material and Methods

This was a descriptive transversal descriptive study in the cardiology department of CHU Point "G" that the hospitalized patients from January 2010 to February 2017 that included all.

The inclusion criteria were concerned patients of both sexes hospitalized or followed in the cardiology department for aortic dissection.

We're not concerned by the survey the patients who were suspected to be submitted the aortic dissection; were suspicions of aortic dissection not benefiting from chest angiography and other causes of thoracic pain syndrome?

## 3. The Judgments Criteria

- The presence of a symptomatology evoking an aortic dissection.
- The confirmation of the aortic dissection was made by the thoracic angioscanner.
- The chest angiography by highlighting signs in favor of aortic dissection.
- The classification used was that of Stanford.
- The treatment was medical due to lack of technical platform. Definition of terms

Aortic dissection is a longitudinal cleavage of the aortic media with creation of a false channel from an intimal tear and bursting of blood into this aortic neo lumen, the two aortic lumens being separated by the intimal membrane. Stanford classification was used. Type A: affecting the ascending aorta; Type B: affecting the descending aorta.

#### 4. Results

The study involved 23 patients out of 6912 hospitalized patients, a hospital frequency of 0.33%. The most affected age group was 50 - 69 years old, accounting for 43.5% of patients. The predominance was male, 82.6% which makes a sex ratio of 4.75 (Table 1). The cardiovascular risk factors found were high blood pressure 73.9%, smoking 60.9% and menopause 13% of cases. The major functional signs were chest pain, dyspnea and cough with 65.2%, 52.2% and 26.1% of patients, respectively (Table 2). Asphygmy with 56.5% and aortic insufficiency breath of novo (60.9%) were the main signs of physical examination (Table 3). Renal failure, anemia and diabetes were the major laboratory abnormalities found with 43.75%, 31.25% and 12.50% of patients, respectively. The majority of the electrocardiograms recorded sinus tachycardia with 86.9%, left ventricular hypertrophy and repolarization disorders with the same percentage of 30.4% of patients. The frontal chest X-ray showed mediastina enlargement with 73.9%, cardiomegaly, 52.2% of patients and a progression of the wall of the aorta with 38% of patients. At echocardiography, dilatation of the ascending aorta was described with 73.9% of patients, the intimal veil with 47.8% and pericardial effusion with 26.1%. As for aortic insufficiency, it was described in 60.9% of the patients (Table 4). In the thoracic angioscan, the aortic dissection gave 43.5% for type A and 56.5% for type B. The aneurysm of the aorta was abdominal with 21.7%, ascending portion 13.0% and descending with 8.7% (Table 5). Complications were dominated by heart failure 47.8% and aneurysm of the aorta 34.8% (Table 6). The extension of this dissection of the aorta was iliac artery with 21.7% and renal artery 17.7% of patients. The lethality was 52.2%.

Sex/Age	30 - 49	50 - 69	70 - 84	
Male	5	9	5	
Female	1	1	2	
Numbers	6	10	7	
Percentage	26.1	43.5	30.4	

Table 1. Distribution of patients according to sex and age.

Table 2. Distribution of patients according to functional signs.

Functional sign	Numbers	Percentage
Chest pain	15	65.2
Abdominal	3	13
Dyspnea	12	52.2
Cough	6	26.1
Hepatic stress	5	21.7
Fear of heights	1	4.3

Complications	Numbers	Percentage
Breath of IAo	14	60.9
Asphygmy	13	56.5
Hepatalgy	6	26.1
Tachycardia	6	26.1
Edema of the lower limbs	5	21.7
Pulmonary carpers	4	17.4
Gallop B3	3	13

Table 3. Distribution of patients according to physical signs.

#### Table 4. Distribution of patients according to echocardiographic abnormalities.

Echocardiographic abnormalities	Numbers	Percentage
Dilation of the ascending aorta	17	73.9
Aortic insufficiency	14	60.9
Intimate veil	11	47.8
Pericardial effusion	6	26.1
Segmental kinetic disorder	5	21.7
Thrombus intra-channel	2	8.7

# Table 5. Distribution of patients by results of thoracic angioscan.

Result of the tho	racic angioscan	Numbers	Percentage
	Ascending	10	43.5
slege of the dissection	Descending	13	56.5
False cl	nannel	11	47.8
	Abdominal aorta	5	21.7
Aneurysm	Ascending aorta	3	13
	Descending aorta	2	8.7
	Iliac	5	21.7
Extension of the dissection	Renal	4	17.4
	Inferior member	1	4.3

## **Table 6.** Distribution of patients according to complications.

Complications	Numbers	Percentage
Heart failure	11	47.8
Aneurysm	8	34.8
Renal failure	7	30.4
Trouble of the rhythm	3	13
Pulmonary embolism Vascular accident ischemia	2 2	8.7 8.7

### 5. Discussion

During study, 6912 patients in the cardiology department, 23 patients were for aortic dissection or a prevalence of 0.33% of cardiac admissions. Our rate was close to 0.24% of DIAO [5] but much higher than that of 0.039% of Cissé [6]. This difference could be explained by the presence of a cardiac intensive care unit at the Point G hospital where cardiac emergencies in Bamako are referred for better healing. The average age of our patients was 45.26 goes with books data [1] [5] [6]. Male predominance accounted for 82.6% with a sex ratio of 4.75. The preeminence of high blood pressure in personal history was classic with 60%. Its pathogenic role is described in the books data [7]. Smoking and obesity were the most common cardiovascular risk factors, with 20% and 15% respectively. The main functional signs were chest pain with 65.2% and dyspnea with 52.2%. We infer that these signs should prompt us to pay more attention to the search for an aortic dissection especially in hypertensive patients with aortic insufficiency of novo and asphygmy on physical examination. The widening of the mediastinum was the major radiological sign with 73.9% in agreement with the data 94% of F. A. Kouassi [7] and 73.9% of Diallo [6]. The electrocardiogram recorded sinus tachycardia with 86.9%, left ventricular hypertrophy, related to high blood pressure. There was no suggestive change in necrosis and this absence in this painful chest picture is strongly suggestive of the disease. About 20% of patients with dissection involving the ascending aorta show signs of acute myocardial ischemia secondary to poor coronary perfusion associated with dissection or tearing of the coronary ostium most often right [8] [9]. At echocardiography, dilatation of the ascending aorta and pericardial effusion were described in 60.9% and 26.1% of patients, respectively, in agreement with books data [10]. The diagnosis of aortic dissection is based on thoracic angioscan by visualization of the false channel separated from the real channel by the intima. According to the Stanford classification, 43.5% was type A and 56.5% was type B and the double channel was visualized with 47.8% of patients. As for the aneurysm of the aorta, it was abdominal with 21.7% of patients, ascending aorta 13.0% and descending with 8.7% of patients. The extension of the dissection was mainly in the iliac artery with 21.7% and in the renal artery with 17.4%. The syndrome of poor perfusion on the visceral branches of the abdominal aorta or the iliac axes can occur extension of the dissection to the abdominal aorta, whether the ascending aorta is concerned or not by dissection. Symptoms suggestive of this poorly perfused syndrome must be recognized in order to be treated urgently. The rupture of the aorta can be done in the pericardium or the pleural cavity causing sometimes a diagnostic delay [10] [11]. The treatment was medical in the absence of cardiovascular surgery unit in Bamako and the indigence of the patient can not bear the costs of evacuation to a more equipped center. Beta blockers and calcium channel blockers were the most commonly used therapeutic classes in agreement with the rest of the books data [2] [5] [12]. Heart failure, aortic aneurysm, and renal failure were the major complications.

We recorded 12 deaths, a mortality of 52.2%. The lethality of aortic dissection with men was 57.9% compared to 25% with women. Classically, the prediction of aortic dissection is formidable with high mortality reaching 70% in the first week [12] [13] [14]. This high mortality rate in our study could be explained by the delay in admission, the lack of a cardiovascular surgery unit in Bamako and the cost of evacuation to a more equipped center.

## **6.** Conclusions

Aortic dissection is a medical and surgical emergency with poor prediction. It is more and more described in Africa where high blood pressure is frequent and severe. The reduction of its morbidity and mortality requires:

- The equipment of our cardiology and radiology services in efficient and non-invasive diagnostic means;
- The opening of cardiovascular surgery units for the management of surgical forms;
- And the prevention of high blood pressure and its visceral complications.

## **Conflicts of Interest**

The authors declare no conflicts of interest regarding the publication of this paper.

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