

# Management of Cardiac Wounds in Togo: About Two Cases at the Sylvanus Olympio University Hospital in Lome, Togo

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## ABSTRACT

Cardiac wounds are an extreme life-threatening emergency. Trauma caused by a knife (in the context of a brawl or assault) or a firearm (in the context of war) represent the main etiologies. Only 10% of patients arrive alive at the hospital where diagnosis and paraclinic should not delay the implementation of resuscitation and surgery in any way. Very few African series have been reported because of the delay in diagnosis and treatment, which means that few patients arrive at the hospital alive. We report two heart wounds that occurred in the context of a brawl whose rapid treatment made it possible to preserve the vital prognosis at the Sylvanus Olympio University Hospital in Lomé, Togo.

**Keywords:** Cardiac Wounds, Vital Emergency, CHU S. O Lomé Togo

## Introduction

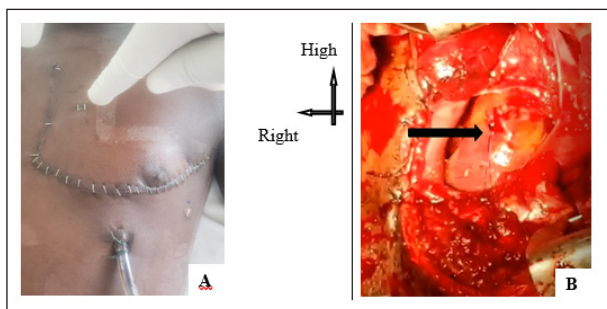
Cardiac wounds are becoming more and more common in developing countries with the incérasse in agression [1]. They are an extreme life-threatening emergency [1,2]. Trauma caused by a knife (in the context of a brawl or assault) or a firearm (in the context of war) represent the main etiologies. Only 10% of patients arrive alive at the hospital where diagnosis and paraclinic should in no way delay the implementation of resuscitation and surgery [2]. In Africa, very few series have been reported, most often clinical cases reported by général surgeons. Very few patients arrive in a cardiothoracic surgery department. We report two cases of heart wounds that occurred in the context of a brawl for which the rapidity of the treatment in a national reference center made it possible to préserve the vital prognosis.

## Observations

### Observation 1

He had been a 14-year-old teenager, attending school, with no particular medical or surgical history, admitted for a penetrating left antero-thoracic wound by stabbing (scissors) during a gambling accident at school.

He was taken to the emergency room an hour after the trauma by a non-médical car. On admission, the patient presented with hemodynamic instability with collapsed blood pressure numbers with a pinched differential, intolerable recumbency with a turgor of the heart. In front of the entrance orifice, which was precordial (Figure 1A), the diagnosis of cardiac tamponade due to a wound of the heart was suggested. He received brief resuscitation, concomitant with the patient's admission to the operating room, and conditioning one hour and thirty minutes after his admission. Faced with the unavailability of emergency cardiac ultrasound, an anterolateral thoracotomy was performed first to confirm an ejecting wound from the base of the left ventricle which was initially filled with a finger and then a conversion to sterno-thoracotomy allowed the repair by direct suture with U-shaped points resting on autologous pericardium with beating heart (Figure 1B). The post-operative period was simple. The patient was discharged from the hospital on D7 the day after the drains were removed (Figure 1B). The 1-year follow-up was clinically normal and echocardiographic.



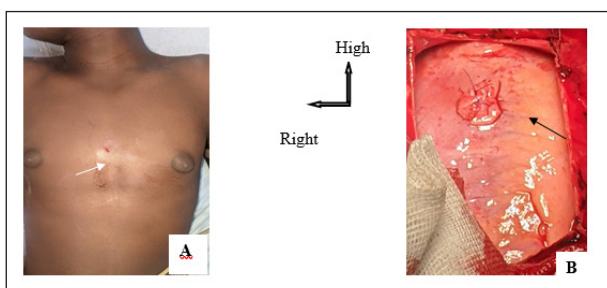
**Figure 1 (Observation 1):**

**A:** View of the surgical wound on D6. Finger objectifying the orifice Entry closed with staples

**B:** Intra opérative view of the suture ventricle wound (arrow)

### Observation 2

It was an 18-year-old patient, a mechanic, with no particular medical or surgical history, admitted for a 1 cm linear wound, penetrating, bleeding in a sheet, in the precordial, right parasternal zone, opposite the right 5th intercostal space (Figure 2 A), by stabbing (dagger) during a brawl. He was taken to the emergency room two hours after the trauma by non-medical transport. He was received in a haemorrhagic shock table motivating the initiation of resuscitation measures with a vascular filling made of macromolecules, crystalloids and blood transfusion that allowed hemodynamic stabilization.

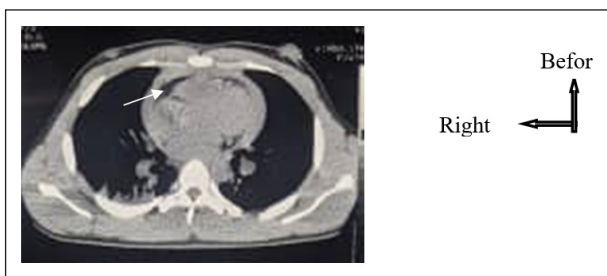


**Figure 2 (Observation 2):**

**A:** View of the precordial wound (white arrow).

**B:** Surgical view of the right ventricle wound suture (black arrow).

A chest CT scan showed a haemo-pneumopericardium of moderate abundance (Figure 3).



**Figure 3 (Observation 2):** Chest CT scan showing hemopericardium (arrow).

He was admitted to the operating room one hour after his admission. Sternotomy revealed a wound in the anterior wall of the right ventricle in a 1 cm seton. There were no associated lesions. The repair was by direct suturing with U-shaped stitches resting on autologous pericardium with a beating heart (Figure

2 B). The post-operative period was simple. The patient was discharged from the hospital on D6. The 1-year follow-up was clinically normal and echocardiographic.

### Discussion

Cardiac wounds are rare, as evidenced by the few cases reported in the literature. In Togo, a first case of treatment of heart wounds was reported by Gnassingbé in 2013 et al [3]. These are extreme life-threatening emergencies. Only 10% of heart wounds make it to the hospital. Of these, the survival rate ranges from 19% to 73%. The mechanisms most often encountered are stab wounds (in the context of brawls or assaults) or firearms (in the context of war) [2, 4]. Two clinical pictures are general: hemorrhagic shock "white wounded" with an unstable patient or tamponade (blue wounded) where the patient's stability remains precarious [5]. The clinical picture of our first patient was that of a white wounded man, which leads to rapid exsanguination, which means that few patients arrive alive at the hospital. Our 2nd case was received in a tamponade table where resuscitation had allowed a hemodynamic stabilization, allowing a CT scan to be performed. This is a clinical diagnosis confirmed by cardiac ultrasound at the patient's bedside when available. The dogma is to consider any wound of the heart as a wound of the heart until proven otherwise. In our 2 cases, the non-availability of ultrasound in our work context led to an urgent surgical exploration being indicated in the face of instability despite resuscitation measures in our first case.

Imaging makes it possible to have a relatively complete lesion assessment for stable patients, but should not delay surgery as was the case in our second patient [4-6].

Sternotomy is the royal approach to the complete exploration of the heart chambers and large vessels. The repair technique is myographic [5, 7]. It's the same attitude adopted in both of our patients. In the event that the traumatic object is in place, it should only be removed when surgical exploration is carried out and as far as possible if there is a safe extracorporeal circulation with the possibility of aortic clamping and cardioplegia is possible as reported by Seghrouchni in Morocco [5]. Repair without extracorporeal circulation is possible for simple, non-transfixing wounds without involvement of the valvular and cardiac vasculo-nerve system as in our patients. In our second observation, it was a non-ejecting wound. However, a haemostatic point should be placed in view of the risk of recurrent bleeding but also of the long-term occurrence of an aneurysm [5, 8].

The prognosis is generally good when management has been early and appropriate. Morbidity is estimated at 25% and mortality at 12.5% in the Avaro series [1]. The main factors of morbidity and mortality identified are delay in management and resuscitation, hemodynamic status on admission, vulnerable (firearms more lethal than bladed weapons), and its location, the presence of cardiac and vascular lesions, concomitant cardiac tamponade (more protective) and degree of myocardial injury.

Follow-up of patients makes it possible to diagnose possible conduction disorders, aneurysm of the heart wall or residual communication [9, 10] should continue for at least 1 year.

## Conclusion

Wounds of the Heart are severe and more and more common with the growth of cities. These are extreme emergencies that are life-threatening. Rapid, appropriate and multidisciplinary care involving intensive care and cardiac surgeon is the only way to save lives. In resource-limited countries, the chance of arriving alive in the hospital is minimal. As a result, for patients arriving alive, multidisciplinary care, without any delay, must make it possible to preserve the vital prognosis.

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