

## Relevance of Multidisciplinary Management of a Case of Progressive Noma on Severe Anemia

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### Abstract

### Case Report

Noma is a rapidly progressive of orofacial ulcerative necrotizing pathology. It mainly affects children under 6 years in sub-Saharan Africa. The most incriminated factors are malnutrition, infections, immunosuppression, parasitic endemics, poor oral hygiene which all contribute to the occurrence of anemia. The management is multidisciplinary and takes place in two phases: conditioning for patient survival then reconstruction phase for social reintegration.

**Keywords:** Noma, severe anemia, child, Bamako.

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## INTRODUCTION

Noma (cancrum oris) is a condition characterized by rapid and irreversible necrosis of the soft tissues of the face and underlying bone. [1] Known since antiquity and designated under this name by Lund in 1762, noma rages especially prevalent in children between 1 and 4 years of age in developing countries. It is therefore considered by the WHO as a public health priority. In some regions of Africa, its incidence varies from 2 to 4 cases per 10,000 children [2]. It results from a complex interaction among many factors which are: infections, immunosuppression, and malnutrition [1]. The latter with its corollary of micron and macronutrient deficiencies can be acute, determined by the W / H index (moderate or severe) or chronic index defined by the H / A index (moderate or severe)[3]. Malnutrition is a predominant factor; it has effects on general immunity, but also on local defense with direct consequences on the periodontium, without forgetting to mention its impact on oral flora: malnourished children showing a predominance of the flora anaerobic, especially gram-negative bacilli [4].

In sub-Saharan Africa, parasitic endemics and poor oral hygiene contribute to the determinants of the disease, and are added to the multiple factors implicated in the etiopathogenesis of Noma.

These can contribute to the occurrence of anemia either by deficiency or hemolysis. It is not uncommon to find hemoglobin levels between 3 and 6g / dL [5], but it is mainly iron deficiency that dominates because it plays an essential role in the synthesis of hemoglobin.

The objective of this observation was to present a case of multidisciplinary management of a case of progressive noma on severe anemia in Bamako, Mali.

## OBSERVATION

The patient was a 5 years old female on the day of the consultation. She was sent to us by Kenieba Reference Health Center after having resort to conventional and traditional medicine. She was then admitted to the CHU-CNOS for a gingival ulcer that was evolving for four months. This symptomatology was associated with foul breath, unquantified fever. There was no notion of eruptive (rash) disease. The socio-economic level was low with poor oral hygiene.

The physical examination showed a fistulized left jugular with area of a necrosis. In extraoral examination, the lesion extends to the para-lateronasal area and the ipsilateral suborbital area (Fig. 1). There was no eyes damage. In intraoral examination, a mouth opening was limited to 15 mm and the ulceration was

extended from the mucogingival line to the inner face of the cheek.

Fever at 40 ° C, impairment of general condition, weight at 12 kg, height at 95.5 cm and a W / H ratio between -2 and -3 Z-score indicating moderate acute malnutrition were noted. Many clinical signs were observed as a subicterus, conjunctival and palm-plantar pallor, a tachycardia at 190 beats / min, and a polypnea at 70 cycles / min.

HIV serology appeared negative. Blood test found hemoglobin level at 2 g / dl, leukocytosis at 18.600 / mm<sup>3</sup> predominated by polynuclear neutrophilic (PN = 78%), and thrombocytosis at 745 000 / mm<sup>3</sup>.

Necrosectomy (Fig. 2, a) has been performed followed by daily local care. According to an urgent blood transfusion need, we used a total quantity of 720 ml of isogroup-isorhesus blood in two sequences (the first day et eleventh days of the hospital stay).

Triple antibiotic therapy: amoxicillin + clavulanic acid and metronidazole were introduced for 18 days, and gentamicin for 5 days by parenteral administration. A concomitant nutritional rebalance was made and associated with administration of iron and albendazole. The evolution was marked by an apyrexia, an improvement of the general state, a reach of the target weight of 13kgs with a good progression of the wound. The control hemogram at day 18 brought hemoglobin to 7.7g / dl and leukocytes to 4400 / mm<sup>3</sup>.

On Day 24 of hospitalization, a sequestrectomy was performed (Fig. 2, b). The wound favorably progressed and the child was discharged from hospital on day 35 (Fig. 3). At this moment, she is waiting for a reconstruction surgery.



Fig-1: Patiente during admission



Fig-2: Patiente after necrosectomy (a and b)



Fig-3: Patiente after being released from hospital

## DISCUSSION

**Age :** the patient was 5 years and 5 months old, which corresponds to the age group of high incidence in children and matches with most studies: In Senegal Reynaud reported a predominance for the age group from 2 to 6 years; [6] in Burkina Faso, Bonkoungou reported that 79.6% of the children in his study were 1-5 years old [7]. In Congo, Toni found children of 1-4 years; [2] In Burkina, Tall found that 80% of the children in his study were between 1-5 years old [8], also the average age reported by Diallo was 5.2 years in Guinea [1], It can be said that it is also the age of oral inflammatory changes, the peak of malnutrition and measles. [8].

**Terrain:** The particularity of this study was the severity of anemia (2g / dL). No study reported hemoglobin levels as low as that. In Guinea, in 5 children of his study, Diallo had 3 cases of severe anemia in which one had 4g / dl, two cases had 6g / dl, and two cases of moderate anemia [1]. In Burkina Faso, T. Konsem on the 3 cases of noma associated with Burkitt disease found 2 cases of severe anemia at 5.5 and 6.5g / dl and a case of moderate anemia [9]; unlike to Tall study in the same country (Burkina Faso), who found 43 % of moderate anemia case [8].

Other particularities found on noma are / HIV : in Guinea, where Diallo collected 5 cases; [1] in Burkina Faso, Tall found 6% positive HIV serology out of 59 cases [8]; in Burkina Faso, T. KONSEM had 20% positive HIV in 55 cases [9] and BONKOUNGOU P found 9.1% of HIV positive serology in 22 cases also in Burkina Faso [7].

Our female patient had moderate acute malnutrition; the frequency of protein-calorie malnutrition was 78% according to BONKOUNGOU in Burkina Faso [7] and 75% according to TALL also in Burkina faso [8]. In Congo, all 2 cases described by TONI K. L. had severe malnutrition associated with HIV [2]. Classically, noma mainly occurs in children living in precarious socio-economic conditions, exposed to chronic nutritional deficiencies [10].

Treatment: our patient received daily local care, nutritional treatment, triple antibiotic therapy: Amoxi-clavulanic acid + Metronidazole + gentamycin; necrosectomy and sequestrectomy.

In Burkina Faso, BONKOUNGOU P. reported a bi-antibiotic therapy (Betalactam or macrolide + imidazole); [12] in Burkina Faso, TALL also a dual antibiotic therapy in 41.2% of cases, mono-antibiotic therapy in 35.3% of patients; and triple antibiotic therapy in 23.5% of cases [5].

## CONCLUSION

Noma is a persistent and worrying reality and is typically encountered among disadvantaged population. The fight against this disease requires preventive actions, communication for behavioral change, and a social policy in favor of the poorest.

## CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest related to this article.

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