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Endoscopic profile of caustic burns of the university hospital center of Cocody Abidjan / Côte d'Ivoire

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Author contributions

Zataou Soumana Issaka: recruitment of data. All authors read and approved the final manuscript.

Competing interests

The authors declare no conflicts of interest.

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Abstract

Background: To determine the clinical and endoscopic demographic characteristics of the ingestion of acidic products in the digestive endoscopy unit of the Cocody University Hospital. **Methods:** This was a retrospective, descriptive and analytical study on endoscopic reports, which took place for five years, from January 1, 2014, to December 31, 2018. All patients were admitted to the digestive endoscopy unit with the indication of ingestion of caustic products. The parameters studied: are demographic, clinical, and endoscopic. The statistical tests used were Pearson's CHI 2 and Fisher's exact tests. The significance threshold was set at 5%. **Results:** 83 patients were included for an endoscopic prevalence of 1.33%. The mean age was 20.77 ± 16.58 years, with extremes ranging from 1 to 63 years. They were divided into 34 men and 49 women for a sex ratio of 0.69. Accidental circumstances were observed in 73.49% of cases, followed by attempted autolysis (26.51%). Bleach was the most offending caustic (75.90%), followed by hydrochloric acid (14.46%). FOGD was normal in 53.01% and revealed stage I (41.54%) digestive lesions, followed by stage II (35.39%) and stage III (21.53%). The lesions were preferentially gastric (36.11%), esogastroduodenal (27.78%), and esogastric (22.23%). Based on severity, 54.55% of esophageal lesions were stage IIA, 53.12% were stage I gastric lesions, and 54.55% were stage IIA duodenal lesions. One case of gastric perforation was noted (1.54%). In univariate analysis, we found a statistically significant link between the age group of 1–14 years and the accidental intake of caustics ($P < 0.001$) on the one hand and the other hand between the age group of 26 years and over and taking for autolysis ($P = 0.02$). Likewise, bleaching was responsible for less severe lesions ($P = 0.006$). **Conclusions:** The seriousness of the ingestion of caustic products requires early, specialized and multidisciplinary management to improve the short, medium, and long-term prognosis of patients.

Keywords: caustic burns, bleach, hydrochloric acid, upper digestive tract, FOGD, accidental, autolysis

Introduction

The ingestion of caustic is the oral absorption of substances that can destroy more or less the tissues with which they come into contact due to their pH or their oxidizing power [1]. The ingestion of caustic, whether accidental or deliberate, constitutes a diagnostic and therapeutic emergency requiring specialized and multidisciplinary medical and surgical management [2]. Upper digestive endoscopy remains the most important diagnostic and monitoring method.

Aim: To determine the clinical and endoscopic demographic characteristics of the ingestion of caustic products in the digestive endoscopy unit of the Cocody University Hospital.

Methodology

This was a retrospective, descriptive and analytical study on endoscopic reports, which took place over five years, from January 1, 2014, to December 31, 2018. All patients were admitted to the digestive endoscopy unit with the indication of ingestion of caustic

products. Exploration was performed using a Fujinon fiberscope (EG 530 WR, EG 530 FL) in hemodynamically stable, conscious patients, fasting for at least 6 hours. All information was recorded in the endoscopy unit register. The parameters studied: demographic (age group: child 1–14 years, adolescent 15–25 years, adult > 26 years; sex), clinical (type of caustic products: bleach, hydrochloric acid, caustic soda, potash, formaldehyde, and circumstances of ingestion: accidental or autolysis) and endoscopic (lesion assessment based on the classification established by DI costanzo). Data collection was carried out using a survey sheet set for this purpose. The entry was made by Word 2007, and the analysis by the software Epi Info version 7.1.0.6. The statistical tests used were Pearson's CHI 2 and Fisher's exact tests. The significance threshold was set at 5%.

Results

6,239 FOGD was performed, and 83 patients were selected, is an endoscopic prevalence of 1.33%. The mean age was 20.77 ± 16.58 years, with extremes ranging from 1 to 63 years. They were divided into 34 men and 49 women for a sex ratio of 0.69. Accidental circumstances were observed in 73.49% of cases, followed by attempted autolysis (26.51%). Bleach was the most offending caustic (75.90%), followed by hydrochloric acid (14.46%). FOGD was normal in 53.01% and revealed stage I (41.54%) digestive lesions, followed by stage II (35.39%) and stage III (21.53%). The lesions were preferentially gastric (36.11%), esogastroduodenal (27.78%), and esogastric (22.23%) (Table 1). Based on severity, 54.55% of esophageal lesions were stage IIA, 53.12% were stage I gastric lesions, and 54.55% were stage IIA duodenal lesions. One case of gastric perforation was noted (1.54%) (Table 2). In univariate analysis, we found a statistically significant link between the age group of 1–14 years and accidental ingestion of caustic products ($P < 0.001$) on the one hand and on the other hand between the age group aged 26 and over and taking for autolysis ($P = 0.02$ and Odd ratio < 1) (Table 3). Likewise, bleaching was responsible for less severe lesions ($P = 0.006$ and Odd ratio < 1).

Table 1 Distribution by site of endoscopic lesions

Organ	Effective (N = 36)	Percentage (%)
Esophagus one	4	11.11
Stomach one	13	36.11
Esophagus + stomach	8	22.23
Stomach + duodenum	1	2.77
Esophagus + stomach + duodenum	10	27.78
Total	36	100

Table 2 Distribution by severity of endoscopic lesions

Stage	Effective (N = 65)	Percentage (%)
I	27	41.54
II	23	35.39
III	14	21.53
IV	1	1.54
Total	65	100

Table 3 Relationship between the circumstances of ingestion and age

	Circumstances of ingestion			
Age range	Accidental n (%)	Attempt at autolysis n (%)	OR (IC 95%)	Value *P*
1–14	29 (47.5)	0 (0)	/	<0.001
15–26	15 (24.6)	10 (45.5)	0.4 (0.1–1.1)	0.07
26–63	17 (27.9)	12 (54.5)	0.3 (0.2–0.8)	0.02
Total	61 (100)	22 (100)	/	/

Discussion

In our series, the endoscopic prevalence was 1.33%. It was close to that reported by Sow H Coulibaly et al in Mali, relating to 20 cases, and lower than that of Camara et al in Côte d'Ivoire relating to 67 cases with respective rates of 2.1% and 6.33% [3, 4]. This low prevalence could be explained by the fact that the number of cases collected does not reflect reality since there are several digestive endoscopy centers, and patients do not always consult a health center after ingestion of caustic but prefer self-medication or even prohibited methods, in particular induced vomiting.

The mean age of our patients was 20.77 years, which was in line with national data, particularly those of Camara and A.S. Thot'o, who found 21 years and 22.24 years, respectively [4, 5]. However, F. Ezzaitouni et al in Morocco and Sow Coulibaly found upper average ages of 31.26 years and 33.05 years, respectively [6]. This difference could be explained by the fact that our study focused on patients of all ages, unlike the international series, which only interested adults. The age groups were homogeneous (1–14 years) (34.94%), (15–25 years) (30.12%) and (26–63 years) (34.94%) in our study. Conversely, A.S. Thot'o found in their series that the age group of (15–30 years) was the most represented [5]. We found a female predominance as well as F. Ezzaitouni [6]. In contrast, Camara B reported male predominance [4].

The circumstances of ingestion were most often accidental (73.49%) in our study. In contrast, F. Ezzaitouni and Abi reported more cases of autolysis with respective rates of 67.8% and 83% [6, 7]. The once rare accidental ingestions are specially recorded in children. The misconception arises from the fact that the product is often transferred to an ordinary bottle for ease of use [8]. Taking caustic, when voluntary, concerns half of the cases of impulsive patients with difficult socioeconomic or emotional conditions or a psychiatric history [9]. This assertion could not be investigated in our study. The main caustics ingested in our series were bleach (75.90%), followed by hydrochloric acid (14.46%). Our study stands out compared to other African series, in particular, those of Camara, Sow Coulibaly, F. Ezzaitouni, and Benaguida M, which reported higher rates of ingestion of acids (sulfuric and hydrochloric) followed by bleach [3, 4, 6, 10]. The high rate of bleach ingestion could be explained by its household use and easier accessibility. In France, caustic soda is in the foreground [11]. A particular effort has been made concerning the packaging of DESTOP in Europe, thus leading to its disappearance from the etiologies of accidents [11]. FOGD found lesions in 46.99% of cases, 92.30% of which were digestive lesions. These lesions were preferentially gastric (36.11%), esogastroduodenal (27.78%), and esogastric (22.23%). Our results were close to those of AS Thot'ô, who reported lesions in 64% of cases which were oesogastric (43.75%), gastric (31.25%), and oesogastroduodenal (12.5%) [5]. DI Costanzo reported in his study a predominance of gastric involvement (87.9%) [12]. Oakes explained this by the retention of the caustic in the gastric cavity increasing, on the one hand, the wall destruction and, on the other hand, the irritation of the mucosa [8]. A single case of gastric perforation was found in our series and was urgently transferred to surgery for treatment.

Conclusion

The seriousness of the ingestion of caustic products requires early, specialized and multidisciplinary management in order to improve the short, medium, and long-term prognosis of patients.

References

1. Report of the consensus meeting on caustic lesions of the digestive tract. Algerian Society of Anesthesia, Intensive Care and Emergency Resuscitation. *Alger, El Aurassi* 1999.
2. Jm. Gornet. Diagnostic and therapeutic management of digestive burns by caustic. EPU Paris VII days. *Paris Gastroenterology Day;* 2005.
3. Coulibaly SHE, Samake DKE, Sidibé SSE, et al. Uper Digestive Tractus Caustic Injuries in Adult Patient in Bamako: Epidemiological, Semiological And Prognostic Aspects. *Mali Med* 2018;33(4):16–18. (French) Available at: https://pubmed.ncbi.nlm.nih.gov/35897238
4. Camara BM, S. Yassibanda, R.F. Camara, D. Mignonssin, Y.R Attia. Poisoning by caustic products: epidemiological study and

therapeutic approach CHU de Cocody, Abidjan (Ivory Coast). *Black African Medicine* 1992;39(4).

5. Thot'o AS, Mobio MP, Brouh Y, Yapi N, da-Koffi CN. Intoxication par ingestion de produits caustiques dans un service de réanimation à Abidjan : facteurs de gravité et de mortalité. *J Afr Hepato Gastroenterol* 2017;11(1):24–29. Available at: http://doi.org/10.1007/s12157-017-0708-6
6. F. Ezzaitouni, W. Badre, M. Choukri, et al. The evolutionary profile of caustic burns of the upper digestive tract in the short and long term. *JFHOD* 2016.
7. Abi F, el Fares F, el Moussaoui A, et al. Caustic lesions of the upper digestive tract. Apropos of 191 cases. *J Chir (Paris)* 1986;123(6–7):390–394. (French) Available at: https://pubmed.ncbi.nlm.nih.gov/3771665
8. Oakes DD. Reconsidering the diagnosis and treatment of patients following ingestion of liquid, Lye. *J Clin Gastroenterol* 1995;21(2):85–86. Available at: https://doi.org/10.1097/00004836-199509000-00003
9. Christophe Legrand, Marc Le Rhun, Stéphane Bouvier. Support for caustic ingestions. *Hépato-Gastro* 1997;4(6):483–93.
10. Benaguida M, Almou M, Abassi O, Sadraoui A, Elharrar N. Caustic lesions of the upper digestive tract. *J Chir (Paris)* 1989;126(5):350–354. (French) Available at: https://pubmed.ncbi.nlm.nih.gov/2745588
11. Dabadie A, Roussey M, Oummal M, et al. Accidental ingestion of caustics in children. Apropos of 100 cases. *Arch Fr Pediatr* 1989;46(3):217–222. (French) Available at: https://pubmed.ncbi.nlm.nih.gov/2535663
12. Di Costanzo J, Noirclerc M, Jouglard J, et al. New therapeutic approach to corrosive burns of the upper gastrointestinal tract. *Gut* 1980;21(5):370–375. Available at: https://doi.org/10.1136/gut.21.5.370