

Patient Care for Hand-Face Syndromes in the Service of Reparatrice Plastic Surgery of Burns of Mohamed V Instruction Military Hospital (About 98 Cases)

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Summary:

INTRODUCTION: The combination of back and facial burns, with or not of upper airway damage, is commonly referred to as "hand-face syndromes." Their seriousness is due to the requirements of timing, the quality of early care, the functional, aesthetic and psycho-social consequences that result.

OBJECTIVES: Our study reports on the experience of our department, and highlights the treatments to be taken in the face of the therapeutic difficulties posed by these burns

MATERIELS AND METHODE: Descriptive retrospective study of a series of 98 cases followed for a syndrome of hand-face in the service of Resuscitation of the Burns and Plastic Surgery of the Military Hospital of Instruction Mohammed V, over a period of 5 years between January 2013 and December 2017.

DISCUSSION: The incidence of this serious condition is not negligible in our context. In addition to the life-threatening condition often involved in severe facial and neck injuries, the multidisciplinary team and the surgeon face the dilemma of the "primer" of the actions to be carried out, the delays in their realization to limit the harm; Thus in our study early management, emergency rescue, early exeresis have helped to limit the damage and offer patients an acceptable quality of life.

CONCLUSION: hand-face syndrome, through preventive measures, early multidisciplinary management, specialized post-operative follow-up could see its incidence drop, and the fate of these patients improves significantly. This also raises the boundaries of Morocco in terms of the centre of the Burns.

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I. Introduction

Simultaneous damage to the face and back of the hands with or without airway damage during a burn defines "hand-face syndrome," usually related to the face and eye protection reflex (1). These locations deserve to be individualized because of the importance of these parts of the body (mirror of being and real actors of its identity), the frequency of these accidents, as well as the functional, aesthetic, psychological and socio-professional consequences they engender.

In addition to the life-threatening prognosis often involved in severe facial and neck injuries, the multidisciplinary team and the surgeon face the dilemma of the "primer" of the actions to be carried out, the delays in their realization to limit the harms; The management of the burns of the face interfering with that of the hands. It is difficult to systematize therapeutic choices, so it's all about a special case to preserve both the functional abilities of the face and hands, and their aesthetics.

The objective of this study is therefore to report the experience of our department in dealing with these cases and to take charge of the treatments to be taken in the face of the various therapeutic difficulties posed by these burns.

II. Materiels Et Methodes

This is a descriptive retrospective study on a file study spread over five years, from January 2013 to December 2017, carried out in the Burns and Plastic Surgery department of the Mohammed V military training hospital in Rabat.

In our work, patients who are directly cared for by the Burn and Plastic Surgery department of the Mohammed V Military Training Hospital or transferred due to a burn.

The criteria that allowed us to include patients in our sample of cases are: Patients of all ages and both sexes; Those with burns to the face and back of both hands with or without respiratory lesion; Patients admitted to acute phase.

On the other hand, we excluded from this sample: Patients with first degree burns; Patients admitted to the sequellar phase; Patients with incomplete records.

For our study, we compiled an operating sheet based on data recorded in the outgoing and incoming patient registries, operating reports and medical records of patients.

Thus, these data covered the evaluation of the clinical characteristics (sex, age, mechanism, length of hospitalization, duration of healing, evolution) paraclinical, therapeutic (acute phase) of the syndrome Face-hands during the above period.

All of this data was collected on an operating sheet. The statistical analyses were carried out using the SPSS 20.0 computer software.

III. Results

Between January 2013 and December 2017, the Burns and Plastic Surgery Department of Mohammed V Military Training Hospital admitted 842 patients, including 98 cases of pure face- hand syndrome, resulting in a prevalence of 11.63%, The average age of our patients was 36.53 years (-6.5), with extremes of 11 and 70 years.

Socio-economically, 89 (90.81%) of our patients were from the lower and middle classes, compared to 9 (9.19%) only from a high class.

This study found that 68 (69.39%) patients were from urban areas;30 (30.61%) patients were from rural areas.

Thirty-five patients in our series had co-morbidity, of which: 19 (19.39%) Diabetics, 14 (14.29%) hypertensive, 4 (4.08%) Epilepsy.

All patients included in our study had a hand-face syndrome. Nevertheless, some specificities were noted in the study of the distribution of lesions; So we had:23 (23.5%) 21 (21.4%) with eyelid damage, 10 (10.2%) with lodgesyndrome.

In all cases:48 (48.97%) patients with superficial second degree burns,34 (34.7%) with intermediate second degree burns, 16 (16.33%) second degree or third degree.

For all patients, only thermal burns were recorded. They were almost essentially related to a domestic accident and distributed as follows:

Mechanism	Number of case	percentage
<i>explosion of a gas cylinder</i>	32	32,6%
<i>boiling oil</i>	7	7,1%
<i>boiling water</i>	10	10,2%
<i>flame</i>	12	12,3%
<i>pressure cooker explosion</i>	37	37,8%

Table 1: Presentation of the number and percentage of cases in relation to burn etiologies Many patients had lesions that worsened their prognosis. These lesions were of order: Respiratorys with inhalation syndrome (3.5%) respiratory distress (5.5%) Ophthalmological Trauma 4 (4.08%), Cranial 4 (4.08%)

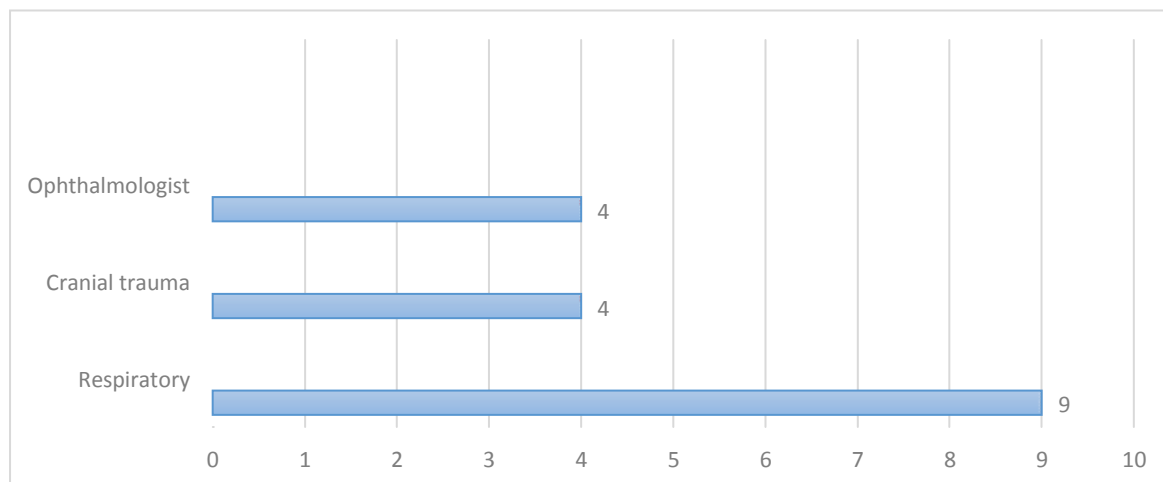


Figure 1: Breakdown of cases based on associated lesions



Figure 02: Patient with "Face-Hands Syndrome. (Iconography of the Plastic, Restorative and Burns Department of HMIMV)

The average admission time was 7 hours+/-2hours.

The average length of stay for all of our patients was 25 days.

The life-threatening prognosis was in: 5.5% of our patients, threatened by the formation of buco-pharyngé edema, 3.5% threatened by an inhalation syndrome.

Functional prognosis was in 10 (10.2%) of our patients facing a box syndrome in the hands of the hands.

In our study, 17 patients with third degree burns, of which only 2 (11.72%) had a UBS index of 50, and 15 had a UBS index of 50

All patients received an initial biological baseline (hemogram, hemostasis, blood ionogram, urea and blood creatinine, CPK...), additional examinations were requested depending on the context. So we carriedout:

Examination	Initial baseline of reference	x-ray thorax	standard	TDM thoracic	Bronchoscopies
Number of patients	98	98		14	23
percentage	100%	100%		14,3%	23,5%

Table 2: Number and Percentage of Patients by a complementary examine

From the therapeutic level, as soon as they arrived at the service, all patients were scoped (eletrocardioscope, temperature sensor...) with the installation of venous pathways, bladder and nasogastric soundings. Anti-tetanus prophylaxis was systematic.

The volemic expansion method used in our study was the EVANS formula: 1ml/%SC B/kg in the form of crystalloid - 1ml /%SCB/Kg colloid - 2000ml crystalloid. The first half was administered within the first 8 hours and the second half within 16 hours.

We infused: 0.9% isotonic salt serum, 5% glucosis serum with 4 g Nacl - 4 g Kcl/l and later colloids (albumin) in case of hypo-albuminemia. On the second day only half of these volumes are infused.

Depending on the intensity of the pain, the majority of our patients received either level 2 analgesia or IV morphine (titration of 0.05 mg/kg then bolus of 0.05 mg/kg every 7 minutes), or ketamine in analgesic dose (0.2 ml/kg every 15 minutes)

Oxygen therapy was systematic in our patients, 12 (12.24%) of them were intubated and 5 (5.10%) tracheotomized in the face of respiratory distress.

We performed emergency: tracheotomy in 5.1% of cases (5 patients), tarsoraphia in 3.06% of cases (3patients), discharge incision in 19.38% of cases (19patients).

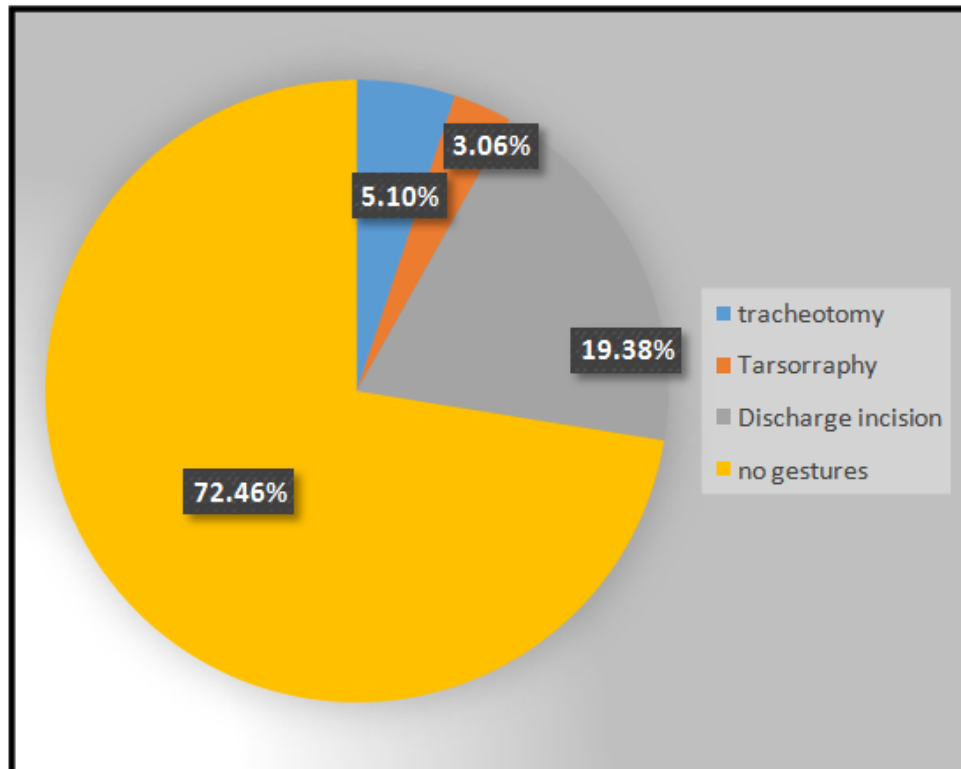


Figure 3: Distribution of patients by surgical procedures performed in an emergency



Figure 04: Discharge incisions made in a patient with a burn in the back of the hand

After emergency actions and/or resuscitation, a thorough cleaning is carried out with the installation of an occlusive dressing of film sulfadiazine for a few days. The frequency of this change was on average one dressing every 24 hours for wounds in the healing phase, and two dressings in case of infection.

Outside the emergency department, 22 patients received primary skin excision, of which 8 (38.09%) received a thin skin graft, 9 others (42.87%), a total skin graft and the last 4 (19.06%), a DERM EZ transplant

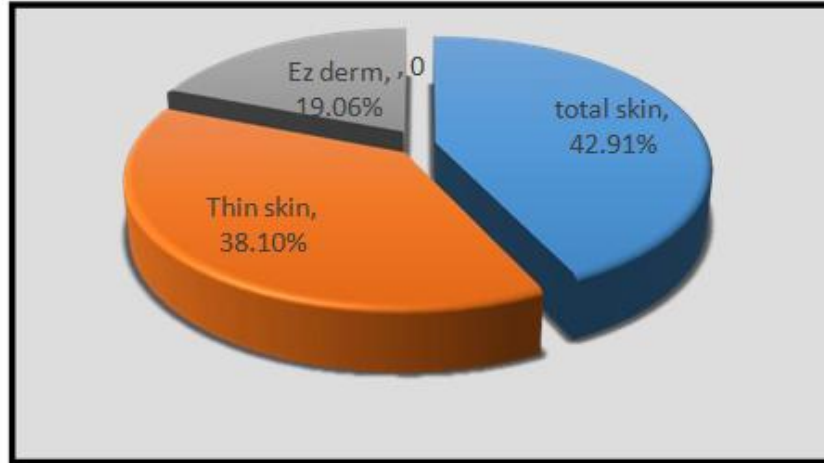


Figure 5: Breakdown by type of transplant

For thin skin grafts: The sample was done mainly on the inner side of the thigh.

For total skin grafts: the sample was taken in addition to 6 patients (66.66%), on the inner arm for 2 patients, or 22.22% of the cases concerned and in retro-ear for 1 patient (11.11%)



Figure 06: skin graft that respects the aesthetic units of the face

No systematic antibiotic prophylaxis in our service, local antiseptics are given to limit the proliferation of germs. Local infections were treated locally. In the face of any documented infection with general clinical signs, antibiotic therapy was administered.

Our patients have all benefited from an ophthalmological opinion and a local treatment made of eye drops (vitamin A...). All our patients either (100%) benefited from PPI-type gastric protection.

During the duration of their stay, 66 (67.35% of cases) patients had documented infections, clinically detectable or not. Among them: 6 (9.1%) skin graft infections; 4 (6.1) venous catheter infection; 3 (4.5) urinary tract infections; 3 (4.5) respiratory;

Only 2 of our patients had complications of decubitus, namely stage 1 bedsores, despite well-conducted nursing care and bedsores.

Of the 98 patients admitted for face-to-hands syndrome we had: 69 (70.4%) outgoing with a good evolution. 24 (24.5%) outgoing with sequelae: 8 functional sequelae has type of scarring, microstomy or ectropion, 16 aesthetic sequelae of the face. Five (5.1%) all related to acute respiratory distress.

IV. Discussion

There are no statistics to give the precise number of burns occurring in developing countries, but WHO attributes 90% of annual burn-related deaths to these countries (2).

Burning is an accident that is still very common in Morocco and especially in rural areas. It represents about 2% of patients admitted to the ER, all pathologies combined (3).

For head-to-hands syndromes, the results are very little comprehensive in terms of the epidemiology of burns; it is all the more difficult to find data on hand-to-hand syndromes. To obtain a little more specific statistics of this syndrome, it is necessary to look in specialized work (theses, dissertations ...) that deal with either burns of the face or those of the hand. However, these statistics are carried out on small cohorts, which are therefore necessarily unrepresentative; As well:

-A study by burns and plastic surgery department and of the Marrakech University Hospital published in 2018 reveals that 21.61% of their burned patients had a face-hand syndrome (46% of patients who were burned in the hand) (4).

-Bourdais, on the other hand, reports that 22.25% of his burned patients had face-to-hand syndrome (53.4% of patients burned in the hand) (5).

- In our series, we recorded 98 cases of face-to-face syndromes out of the 842 patients received in our service at HMIMV during the duration of our study, an incidence of 11.63%.

The results of our analysis show that of the 98 patients received, 53 (54.09%) of them were male and 45 (45.91%) female with an H/F sex ratio of 1.17; a study conducted by the STI shows that, regardless of age, the male sex represents 64% compared to 36% for the female sex.

According to the Forjuoh SN et al study, or Davies JW's study, women are burned more often than men, probably due to the importance of accidents in meal preparation in developing countries (7;8). One of the reasons for our results is that the population studied is predominantly military and male.

The results of our study are consistent with those of national and international studies with regard to the age of patients; nationally, Tadili M. in a study published in 2016 estimates that 52.2% of severe burns belong to the category of "young adult" i.e. 20 to 39 years, with a peak between 25 and 28 years. The average age of the study population is 37.8 years (9). The Institute of Health Watch (IVS) in metropolitan France has published a study that says burns are particularly common from the age of 20. The average age of severe burn victims is 38.8 years (6).

The study published by Chong et al records an average age of 35 (10). Mitiche B. and Behioul M. found that 59% of adult severe burns occurred between the age of 15 and 35 (11).

In our series 90.81% were of medium or low socio-economic level against 9.19% for a high level. These results are entirely consistent with WHO epidemiological data (2) which state that the risk of burns is closely related to socio-economic status. For example, people in low- and middle-income countries are at higher risk of burns than those in high-income countries.

For our study, we found that all patients were transported by medical transport and this within an average of 7 hours. Far from being ideal, this testifies to a certain awareness of the populations in the face of severe burns but also, of the availability of the technical plateau (rescue, medical ambulances...) in our region. However, efforts remain to be made when we know that some authors have shown that a hospitalization time of more than 6 hours is a factor of poor prognosis (12). Perro G. and Bourdarias B. reports that the admission time for injured patients at the Bordeaux Burn Service varies between sixty minutes and four hours (13).

For the entire population studied here, the only mechanism in question is "thermal." With 70.4% of cases of explosion of pressure cooker or gas bottle explosion.

Although the numbers are higher in our series, we still agree with Mitiche B. et al. On the order of frequency of the various vulnerable agents namely: the explosion of gas remains the most common cause of severe burn in

adults with 31% of cases while the flames come second with 22%. These results are different from those obtained by Boccara, which gave 1st place to flame accidents (more than 52% of cases), then came liquids (29%) (14), gas (16%) then solids (3%).

The results observed in our study could be justified by the fact that the majority of the population concerned comes from the middle and lower social class. As a result, they are often inclined to use lower quality pressure cookers, or to use small gas cylinders and other traditional heating devices in cold weather.

The staging of burns is always difficult in the acute phase, especially in our study where the 1st degree was excluded from the outset and the degree recorded corresponded to the highest level represented in the patient. Our results are close to those obtained by TADILI M in its series on severe burns (9).

Barrow R.E. reminds us that it is important to keep in mind that the early vascular filling is a determining factor in the prognosis, as hydro-electrolytic losses occur in the early hours, implying that any delay promotes the occurrence of organ failures (15). As a result, all of our patients received pre-hospital conditions (peripheral venous pathway and sounding), and were transported to our centre by medical transport.

Our approach is in line with E. CantaisP (16) and P. Goutorbe Y., who state that it is preferable to have two peripheral venous pathways of a caliber greater than or equal to 16 G in order to separate the pathway dedicated to vascular filling from that dedicated to sedation.

In our study, life-saving actions were taken as a response, 19 (19.38%) patients received discharge incisions, 10 of which were after initial intra-hospital monitoring. This demonstrates the importance of close monitoring of the evolution of injuries at the service level on the one hand, and on the other hand, the importance of placing this indication in the face of the deep impairment of the back of the hand.

Resuscitation initiated in pre-hospital continues in our department by the Evans protocol. Holm C. reminds us that none of the filling protocols have been the subject of comparative studies, objective and the choices of the various specialized teams, based in this field on evidence-based medicine, guided by personal experience or even, received ideas (17).

12(12,24%) of our patients were intubated, whereas in the initial phase there were only 3 of them who showed an indication of intubation. Which goes in the direction of Cantais et al.

(16) for whom this indication is placed even in the absence of respiratory distress or obvious indication.

In our series no antibiotic prophylaxis was given upon admission; Local infections were treated locally; systemic antibiotic therapy was introduced in the face of documented infections (the antibiotic).

Our attitude is in line with the recommendations of the SFETB (18), knowing that the usual criteria of infection based on the presence of an inflammatory syndrome (hyperthermia, hyperleucocytosis, elevation of CRP) are inoperative in the burnt and lead to the prescription

The evolution of lesions in the 81 (82.65%) patients reached in the 2nd degree superficial or intermediate was favorable under conventional therapy with the exception of 5 (5.10%) of them who had no epidermization after 3 weeks. This is entirely consistent with the literature data (20).

Of the 98 patients recruited, 17 (17.34%) had 2nd degree or 3rd degree burns at admission, but in the end 22(22.45%) have benefited from an ex-graft. This underlines once again the evolutionary nature of the lesions, the need for close monitoring and the need for a "case- by-case" therapeutic approach.

Thus, our team did not perform any early excision (- 48 hours) to not pour in excess and increase the scarring ransom. This approach is in line with that of Allocated et al. (21) which justifies its conduct by the fact of the topographical peculiarities (vascular richness and annexial structure). That's why in their team the face and hand are the last two surgical steps, but without exceeding 21 days.

According to Ong YS et al., for deep burns (3rd degree), this excision-graft should ideally be performed within 8 days of the burn, then called an early excision-graft (22).

Regarding the skin removal site; our attitude differs somewhat from those in the literature (1;23) which indicates scalp as a preferred sampling site for thin skin grafts. Our approach is related to the concern for "blood savings" given the more hemorrhagic nature of the scalp.

The average length of hospitalization in our series was 25 days, depending on the age and degree of the lesions. This is consistent with the study of Allocated et al. (21) for whom the transplant excision was performed until the 18th day post burn and Boukind L. and Chlihi A. (12), from the Burn and Plastic Surgery Department of the IbnRochd University Hospital in Casablanca, who report that skin grafts are performed on average on the 30th day.

However, this figure remains high in relation to the literature, both nationally and internationally. For example, according to a study by the INSTITUTE for Health Watch IVS (6) and M.Tadili (9), the DMS in adults was 9.78 and 11.82 days, respectively.

In our series we had 5 (5.1%) death due to acute respiratory distress; these results are similar to those obtained by the MiticheBet et al. and by that of Boukind L., Chlihi A., in severe burns in general, the cause of death in their studies, remains different. Septic shock and hemodynamic shock were the two main causes. This

difference could be explained by the very fact that the main factor of severity in our study is localization in contrast to that of the above-mentioned authors which was rather the extent of the lesions.

V. Conclusion

The face-hands syndrome is a real public health problem because of its significant impact on the one hand, and the possible aesthetic, functional and psycho-social consequences on the other. The data collected throughout our study cannot reflect the realities of this condition in the general population in Morocco.

This study could lead to complementary work at the national level, to establish a workable epidemiological basis for targeted preventive actions, and to propose appropriate therapeutic attitudes.

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