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Orthopaedics & Traumatology: Surgery & Research xxx (2017) xxx-xxx



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Original article / Work of the SOO (the Orthopedics and Traumatology Society of Western France)

# Acute finger-tip infection: Management and treatment. A 103-case series $\stackrel{\mbox{\tiny $\%$}}{}$

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#### ARTICLE INFO

Article history: Received 21 November 2016 Accepted 6 March 2017

Keywords: Felon Finger-tip infection Antibiotic therapy Paronychia

#### ABSTRACT

*Introduction:* Acute fingertip infections (AFTI) are common. Surgical treatment is the norm in case of effusion. There is, however, no consensus on treatment modalities, or on adjuvant antibiotic therapy (AT). We present the results of a consecutive cohort of 103 AFTIs treated in emergency consultation.

*Materials and method:* One hundred and one patients were treated by excision and extensive lavage under digital anesthesia, with systematic bacteriological sampling. Patient history, treatment history, location, type of bacteria, complications or recurrences and AT prescription were recorded and analyzed. All patients were reviewed at first dressing (5–7 days) and recontacted at 1 month, to record any pain, stiffness or recurrence. Three groups were distinguished: A: without preoperative AT (n = 71); B: under AT before surgery (n = 14); C: with postoperative AT (for severe comorbidity) (n = 16).

*Results:* Mean age was 39.7 years (range: 14–84 years). The three main types of bacteria were: *Staphylococcus aureus* (58.3%), polymicrobial flora (16.5%), and *Streptococcus* (12.6%). Mean time to first dressing was 5.7 days. There were no recurrences, whatever the bacterial type or patient group. In 5 patients in group A (8.2%), AT was later prescribed at day 5 (3 for hypercicatrization and 2 for maceration). In groups B and C, progression was unproblematic. At 1 month, all patients considered themselves cured; finger-tip sensitivity was conserved in 10, and 16 were awaiting complete nail regrowth.

*Discussion:* Hospital admission, operative treatment under general anesthesia, and AT are factors exacerbating cost and increase the management burden of AFTI. Treatment in emergency consultation seems perfectly feasible. AT does not seem useful in the absence of severe comorbidities if resection is complete. Analysis of bacterial susceptibility and renewal of the initial dressing at 1 week enable progression to be monitored and treatment changed as necessary.

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#### 1. Introduction

Acute finger-tip infection (AFTI) is the most frequent form of hand infection [1–4]. The usual causes are onychophagia, manipulation of dirt, neglected wounds, and residual foreign bodies [5,6]. The most frequently implicated bacteria are cutaneous or oral Gram-positive cocci-commensals [7].

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http://dx.doi.org/10.1016/j.otsr.2017.03.024

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Progression, when treatment is lacking or inadequate, may lead to potentially serious infectious disorder: local (osteoarthritis), regional (phlegmon) or septicemic. Non-resolution may lead to severe, damaging functional and trophic sequelae [1,2]. Surgery is indicated in case of gathering, and consists in evacuating the abscess, resecting infected tissue and abundant lavage. The basic attitude is consensual, but the same cannot be said about implementation: duration of hospital admission, type of anesthesia, and possible adjuvant antibiotic therapy. Surgery is still frequently performed in hospital, under general anesthesia in the operating room [4,8]. Complementary antibiotic therapy has long been considered uncontributive by certain authors [9,10] except in cases of fragile diathesis, but remains frequently prescribed and recommended [8,11,12]. The objective of the present study was to validate emergency-room surgical treatment of AFTI under digital anesthesia, without hospital admission and without first-line AT except in cases of fragile diathesis.

Please cite this article in press as: Rabarin F, et al. Acute finger-tip infection: Management and treatment. A 103-case series. Orthop Traumatol Surg Res (2017), http://dx.doi.org/10.1016/j.otsr.2017.03.024

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<sup>&</sup>lt;sup>1</sup> Article issued from the SOO (the Orthopedics and traumatology society of Western France).

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#### 2. Materials and methods

A consecutive prospective multi-operator study of AFTI was performed. Cases with more than 9 days' progression were excluded, no longer being considered acute, as were chronic pathologies (perionyxis, recurrence after multiple treatment, ungual dystrophy, etc.), AFTI with general symptomatology, tendon sheath involvement and osteoarticular infection. Children under 14 years of age were also excluded, as they still show growth potential and require distinct medium and long-term follow-up. Systematic preoperative radiography excluded radio-opaque foreign bodies and osteoarticular infection.

The management protocol was standardized (Fig. 1): treatment in the emergency room, under digital anesthesia, with magnification, and digital tourniquet (on surgical forceps, to ensure none were forgotten) to leave the lesion site free of blood.

Lesion resection was performed with wide margins into macroscopically healthy tissue; purulent gathering was evacuated and sent for bacteriological analysis. All infected tissue was removed, and abundant lavage with clear serum or Bétadine<sup>®</sup> (povidoneiodine) solution was performed before protective dressing. All patients were seen again for renewal of dressing and were instructed in dressing care, treatment compliance, and clinical alert signs (pain, stained dressing, suspicious odor, fever).

The following parameters were assessed and analyzed:

- at emergency room admission: age, gender, affected digit, infection location on the finger-tip, patient history, possible etiology (onychophagia, wound, foreign body), time of onset of infection, treatment taken, pain (on VAS), bacteria isolated, and initiation (with amoxicillin+clavulanic acid) or continuation of antibiotic therapy;
- at first dressing: pain (VAS), scar aspect, persisting signs of infection, and AT tolerance;
- on telephone interview at 1 month: pain, finger flexion compared to adjacent digits and contralateral hand, ungual aspect (loss,











**Fig. 1.** Surgical procedure for AFTI: a: AFTI; b: incision and lesion excision; c: bacteriological sample; d: post-excision aspect; e: non-adherent topic; f: final dressing.

regrowth), recurrence (medical treatment or reoperation), and treatment satisfaction (not satisfied, poorly satisfied, satisfied, very satisfied).

Three groups were distinguished according to AT status:

- group A: no postoperative AT;
- group B: postoperative AT prescribed by us;
- group C: already on AT before treatment.

#### 3. Results

One hundred and one patients were treated: 39 female, 62 male (sex-ratio: 1.6), including 2 treated a second time during the study period for AFTI involving a different finger. Mean age was 39.7 years (range: 14–84 years). The majority of patients were right-handed (85, versus 16), but the lesion side as more equally distributed: 61 right, 42 left. The first three fingers were the most afflicted (Fig. 2).

Mean time to treatment was 4.8 days (range: 2-8 days). Mean VAS pain score on arrival was 5.55 (range: 0-10). The most frequent location on the finger was the eponychium (52.5%) (Fig. 3). There was a single site in two-thirds of cases.

In 50.5% of cases, etiology was either onychophagia (40.8%), wound (4.8%) or foreign body (4.8%).

Twenty-one patients were taking AT: most frequently, pristinamycin (11 patients) or associated amoxicillin+clavulanic acid (8 patients). Sixteen continued their AT after our treatment.

Eight patients had relevant history: 4 cases of ongoing chemotherapy, 2 of diabetes, 1 of scleroderma, and 1 of corticosteroid therapy.



Fig. 2. Distribution of fingers.



Fig. 3. Location on fingertip.

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