

HEMATOMA OF THE PROXIMAL NAIL. REPORT OF 41 CASES

KRWIAK PROKSYMALNEJ CZĘŚCI PAZNOKCIA. RAPORT Z 41 PRZYPADKÓW

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Abstract

Background: The proximal fold is an important part of the nail apparatus it contributes to the formation of the nail plate and through the cuticle acts as an impermeable barrier protecting it from any cause.

Objective: To know the proximal nail fold hematoma caused by the use of pulse oximeter.

Material and Methods: A descriptive study was conducted in 41 patients with proximal nail hematoma secondary to the use of oximetry in patients hospitalized in the Intermediate and Intensive Care Unit at the Hospital General de Enfermedades from December 1, 2007 to December 31, 2010.

Results: We studied 41 patients with proximal nail fold hematoma secondary to the use of oximeter, 30 (73.1%) were males and 11 (26.8%) females. The numbers of fingers affected by pulse oximeter were in one digit. 30 (73.1%) cases, in two digits 6 (14.6%), in three digits 3 (7.3%), in 4 digits 1 (2.4%) and in 5 digits 1 (2.4%) case. The most affected proximal nail fold was right index: 24 (58.5%), right middle 11 (26.8%), right ring 6 (14.6%), left index 12 (29.2%), and left middle 6 (14.6%) cases.

Conclusions: Hematomas of the proximal nail fold may be caused by different traumatism. The use of pulse oximeter is one of them.

Streszczenie

Wstęp: Proksymalny wał jest ważną częścią paznokcia, przyczynia się do powstawania płytki paznokciowej i poprzez działania oskórka jako nieprzepuszczalnej bariery chroni go.

Cel: Obserwacja krwinków proksymalnego wału paznokcia powstałych po użyciu pulsoksymetru.

Materiał i metody: Opisowe badanie zostało przeprowadzone u 41 pacjentów z wtórnym, proksymalnym krwiakiem paznokcia po zastosowaniu oksymetrii u chorych hospitalizowanych w Oddziale Intensywnej Terapii w Szpitalu General de Enfermedades od 1 grudnia 2007 do 31 grudnia 2010.

Wyniki: Zbadano 41 pacjentów z wtórnym krwiakiem proksymalnego wału paznokcia powstałego po użyciu oxymetru. 30 badanych (73,1%) stanowili mężczyźni, a 11 badanych (26,8%) kobiety. Numery palców na których założono pulsoksymetry były następujące: palec pierwszy (kciuk) 30 (73,1%) przypadków, drugi 6 (14,6%), trzeci 3 (7,3%), czwarty 1 (2,4%) i piąty 1 (2,4%) przypadek. Najczęściej zmiany dotyczyły bliższego wału paznokcia prawej strony, indeks: 24 (58,5%), prawa połowa 11 (26,8%), prawy pierścień 6 (14,6%), indeks lewej strony 12 (29,2%), a środka 6 (14,6%) przypadków.

Wnioski: Krwinki bliższego wału paznokcia mogą być spowodowane przez różne czynniki traumatyczne. Użycie Pulsoksymetru jest jednym z nich.

Key words: nail fold, oxymeter, hematoma

Słowa kluczowe: wał paznokciowy, pulsoksymetr, krwiak

Introduction

The nail apparatus may be affected by different forms of hematomas, depending to the cause different structures can be affected; the nail plate is the most affected secondary to major and minor trauma in both fingernails and feet.

The function of the proximal nail fold is to protect the nail plate through the cuticle; it acts as an impermeable barrier protecting it from any noxa. We report our experience of 41 cases with proximal nail hematoma secondary to use of the oximeter in the Intermediate and Intensive Care Unit at the Hospital

Material and Methods

A descriptive study with 41 patients presenting proximal nail hematoma secondary to the use of oximetry hospitalized in the Intermediate and Intensive Care General at the Hospital General de Enfermedades from December First 2,007 to December 31, 2,010.

Results

We studied 41 patients with proximal nail fold hematoma secondary to use of oximeter (Fig. 1), 30 (73.1%) were males and 11 (26.8%) were females; age ranging from 0-20 0 cases, 21-40 6 (14.6%) , 41-60: 16(39%) , 61-80 13 (31.7%) and more than 80 years 6 (14.6%) cases.

The causes of hospitalization were sepsis 12 (29.2%) cases (Fig. 2), pancreatitis 4 (9.7%) , diabetes mellitus and sepsis 4 (9.7%), respiratory distress syndrome 4 (9.7%), myocardial infarction 3 (7.3%), exploratory laparotomy 3 (7.3%), craniotomy 2 (4.8%), upper gastrointestinal bleeding 2 (4.8%), chronic renal failure 2, congestive heart failure, dengue hemorrhagic fever (Fig. 3), myasthenia gravis (4.8%), Guillian Barre syndrome and bradycardia, 1(2.4%) case each one. Hematoma of the proximal nail fold were diagnosed in 41 cases and 69 digits were affected, the numbers of fingers affected by pulse oximeter were in one digit 30 (73.1%) cases, in two digits 6 (14.6%) (Fig. 4), in three digits 3(7.3%), in 4 digits 1 (2.4%) and in 5 digits 1 (2.4%) case.

The fingers affected were right index: 24 (58.5%), right middle 11 (26.8%), right ring 6 (14.6%), left index 12 (29.2%), and left medium 6 cases (14.6%) (Table 1).

The time of occurrence of the hematoma ranged from less than 10 days 20 patients (48.7%), 10-20 days: 5 (12.1%), 20-30 days 1 (2.4%), unknown 15 (12.1%) cases, less time being 3 days and the most being more than 30 days.

The left and right index fingers were the most affected because they are the digits in which oximetry is often placed

Number of affected fingers	No	%
One	30	73.1
Two	06	14.6
Three	03	7.3
Four	01	2.4
Five	01	2.4
Total	41	
Affected Proximal Nail Fold	No	%
Right index finger	24	58.5
Right middle finger	11	26.8
Right ring finger	06	14.6
Left Index finger	12	29.2
Left middle finger	06	14.6

Table 1. Hematoma of the proximal nail fold Affected Fingers



Figure 1. Oximeter in a patient in Unit Intensive Care

Discussion

Proximal nail folds of fingers can be affected by traumatic factors being one of the most frequent causes of hematomas at this level, within which we have this nail biting and tearing of hangnails. However, it is important to know other

hematomas at this level as are those produced by the oximeter use; their presence in several digits and no history of oximeter use thereof must make us suspect other diseases that can be presented such as collagen diseases or sepsis.

The proximal fold is a continuation of the dorsal skin of the digits, it gives rise to two epithelial surfaces, the dorsal and the ventral, the latter contributes to the formation of the nail plate [1].

The proximal fold is structurally similar to the surrounding skin without dermatoglyphics and sweat glands, it has three parts: the glabrous skin, the cuticle and the ventral portion of this fold called eponychium. This fold is important because it contributes to the formation of the nail plate through the dorsal matrix in the low ridge of its ventral portion, influences the growth direction of the nail plate in an oblique form above the nail bed and in the microcirculation that provides useful information on some pathologic conditions [2].

This nail fold can be affected by skin, systemic and infectious diseases, benign and, malignant tumor, drug reactions, traumatismos between others [2-4].

Among the traumatic causes affecting this fold are the hematomas caused by the use of oximetry in patients hospitalized at the intensive care unit, this kind of hematoma is caused by the constant pressure of the oximeter, since this is like a clip [1]. This occurs in patients in critical care where pulse oximetry is one of the most important advances to monitor blood oxygen saturation noninvasively [5].

The proximal nail fold hematoma affects the free edge letting off the cuticle, at the beginning it was thought that its appearance could be due the prolonged use of the oximeter (30 days), however some cases have been seen after 1 to 3 days of using it, one or more folds can be affected according to where the oximeter is placed [1].



Figure 2. Proximal nail fold hematoma in female patient with sepsis



Figure 4. Proximal nail fold hematoma caused by oximeter in two digits



Figure 3. Proximal nail fold hematoma in male patient with Hemorrhagic Dengue

Proximal fold hematomas can also be of iatrogenic origin due to the improper use of the oximeter [5].

Proximal fold hematomas can occur without any changes of the nail apparatus but dyschromia caused by them, unlike the ones caused by major trauma that may present with onychomadesis, onycholysis, deformity or loss of the nail and sometimes onychodystrophy [6].

It is important to recognize these traumatic hematomas of the proximal fold caused by the use of the oximeter, and distinguish them from the capillaries thrombosis of the proximal fold seen in collagen-vascular diseases, especially systemic sclerosis and dermatomyositis, as well as septicemia [1].

Bleeding from the proximal folds may also occur in mountain climbers following a severe freeze or in people who practice winter sports outdoors. This bleeding may be caused secondary to the cold that affects the peripheral circulation in the capillaries around the nail folds, causing necrosis by cell destruction, tissue edema and thrombosis. However, these mechanisms are not well defined [7].

This type of hematoma disappears on its own and all that is needed to prevent its formation is to rotate the oximeter in the different fingers of the patient. It is also important to train medical and nursing staff about the correct technique for the placement of the oximeter [1,5]. This is probably an unknown condition to many for what we consider important its disclosure.

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