Conjunctival icterus: a concept discussion

Carlos D. Silva^{1,2*}, José E. Mateus^{1,2}, Teresa Vaio^{1,2}, Henrique Alexandrino^{2,3}

European Journal of Medical Case Reports

Volume 3(3):123–124 © EJMCR. https://www.ejmcr.com/ Reprints and permissions: https://www.discoverpublish.com/ https://doi.org/10.24911/ejmcr/ 173-1562097265

ABSTRACT

Keywords: Jaundice, medical semiology, eye.

Received: 03 July 2019	Accepted: 27 September 2019
Type of Article: Letter to the Editor	Specialty: Internal Medicine
Conflict of interests: None	

Hyperbilirubinemia, whatever its cause, is presented at physical examination as jaundice, for bilirubinemia values \geq 3 mg/dl. Initially, William Osler described as jaundice, on the classic textbooks of medicine, as yellow coloration of the skin and conjunctivae, considering the latter as first site where it's observed. In the last century, the sclera has replaced the conjunctiva as the site of ocular jaundice, considering the characteristics and affinity of bilirubin for these two layers [1]. Through this clinical case, we reflect about the semiology of jaundice and propose "conjunctival icterus" like the best reference.

A 54-years-old female, hospitalized in an intensive care unit during 5 months for severe acute pancreatitis with maintained hyperbilirubinemia [total bilirubin = 6 mg/dl (0.3–1.2), direct = 4 mg/dl (0.0–0.3)], hypoalbuminemia [1.8 g/dl (3.5–5.2)] with consequent generalized edema.

Figure 1 shows asymmetric conjunctival edema (chemosis) accumulated at the left ocular ends due to left lateral decubitus for a few hours following the alternation of decubitus. This edema (transudate) is constituted in the integrity of the fibrous layer of the conjuntiva lamina propria, since it is in this layer that there is abundance of blood vessels (Figure 2) [2]. This innermost layer of the conjunctiva is a mesh of collagen and elastin fibers for which bilirubin has large electrostatic affinity [3]. The sclera, although rich in elastin fibers in the innermost layers, has a sparse vascularity, mostly at the expense of the conjunctival vessels and its outermost conjunctival layer (epsiclera) [2].

In this image, the yellow coloration of the conjunctival chemosis is observed (arrows 1), while the sclera remains white in free edema areas (arrows 2). This demonstrates the consistency of the term "conjunctival icterus" rather than focusing the sclera as the site of bilirubin deposition. It is even more true in jaundice of recent evolution, since penetration of bilirubin into the innermost layers of the sclera is less likely given its poor vascularity.



Figure 1. Eyes with icteric conjunctival chemosis on the jaundice patient.



Figure 2. Layers of conjunctive. Adapted from "Anatomy and Physiology of Eye" [2].

Author details

Carlos D. Silva^{1,2}, José E. Mateus^{1,2}, Teresa Vaio^{1,2}, Henrique Alexandrino^{2,3}

- 1. Department of Internal Medicine, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal
- 2. Faculty of Medicine, University of Coimbra, Coimbra, Portugal
- 3. Department of General Surgery, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal

Correspondence to: Carlos D. Silva *Faculty of Medicine, University of Coimbra, Coimbra, Portugal. Email: cdiasdasilva13@gmail.com

Full list of author information is available at the end of the article.

Consent for publication

A written consent for publication was obtained from the patient.

References

- Kuiper JJ. Conjunctival icterus. Ann Intern Med. 2001;134(4):345–6. https://doi.org/10.7326/0003-4819-134-4-200102200-00029
- 2. Khurana AK, Khurana I. Anatomy and physiology of eye. 2nd ed; 2010.
- Nagarajan U, Christopher JG, Jonnalagadda RR, Chandrasekaran B, Balachandran UN. Studies on the chemico-biological characteristics of bilirubin binding with collagen. Mater Sci Eng C Mater Biol Appl. 2013;33(8):4965–71. https://doi.org/10.1016/j.msec.2013.08.021