Journal of
Cardio - Thoracic Medicine

http://jctm.mums.ac.ir

Osler's nodules and Janeway lesions, their clinical diagnostic utility oriented towards infective endocarditis in users of continuous venipuncture for aesthetic procedures, platelet-rich plasma (PRP) and their stigma related to parenteral drugs (IPDU) Case report

Evelyn Monserrate Loor García [1], Karla Lissette Loor García [2], Arnold Enrique Alvarez Joli [3], Jorge E. Rodríguez Delgado [4*]

[1] Clinical Dermatology Service, San Alejandro Clinic–Mexico
[2] Gynecology and Obstetrics Service, San Alejandro Clinic–Mexico
[3] Resident Doctor, San Alejandro Clinic–Mexico
[4] Department of Cardiovascular Surgery, National Medical Center 20 of November – ISSSTE, Mexico City, Mexico

ARTICLE INFO

Article type:
Case Report

Article history:
Received: 23 January 2024
Revised: 20 April 2024
Accepted: 20 May 2024

Keywords:
Clinical Dermatology Service,
Clinical Cardiology and Hospital Cardiovascular Surgery Service,
San Alejandro Clinic – Mexico

ABSTRACT

Infective endocarditis (IE) in users of continuous venipuncture for aesthetic procedures such as treatment with Platelet Rich Plasma (PRP) and parenteral drugs (IPDU) is a rare but potentially serious complication. The clinical, microbiological, and histological data of an episode of infective endocarditis (IE) are described where Osler's Nodules and Janeway Lesions played a crucial role in the diagnosis of (IE). 43-year-old male, with no history of parenteral drug use (IPDU), but with a significant history of a facial aesthetic procedure such as peeling with platelet-rich plasma on repeated occasions. We present and discuss the diagnostic challenges and stigma associated with DUVP in this clinical context.

► *Loor García, E.M., Loor García, K.L., Alvarez Joli, A.E., Rodríguez Delgado, J.E. Osler's nodules and Janeway lesions, their clinical diagnostic utility oriented towards infective endocarditis in users of continuous venipuncture for aesthetic procedures, platelet-rich plasma (PRP) and their stigma related to parenteral drugs (IPDU) Case report. J Cardiothorac Med. 2024; 12(1): 1314-1318. Doi: 10.22038/jctm.2024.77704.1449*

Introduction

IE is a serious complication that can arise in users of continuous venipuncture for aesthetic procedures and administration of parenteral drugs. This case report highlights the relevance of Osler Nodules and Janeway Lesions in the early identification of IE in PRP and UDVP users.

Clinical Case

A 43-year-old male patient denies any relevant personal pathological history, denies, and affirms that he has never been involved in drug addiction, but with important data of continuous venipuncture for 6 months for aesthetic procedures such as skin peeling with a Cosmetologist and/

Corresponding author: Jorge Eduardo Rodríguez Delgado: Cardiothoracic Surgeon, Uxmal 871 – Int 502 Santa Cruz Atoyac – Delegación BJ CP: 03310. Tel:+5215534290764, Email: drrodriguez1990@gmail.com

or Cosmetician. With blood extraction by brachial venipuncture to extract autologous blood and be centrifuged to obtain platelet-rich plasma (PRP) and thus perform facial mesotherapy to presumably eliminate the consequences of acne. Three months after these practices, which according to what he says were carried out with all the rules of asepsis and antisepsis, he presented persistent fever for 7-15 days and general malaise. 28 days later he went to a specialized medical consultation with Dermatology where dermatoses were observed located on the pad of the fingers and toes, consisting of subcutaneous nodules with violaceous placement measuring 2 to 3 mm in diameter, smooth surface, and defined edges, considered Osler's Nodules and Janeway lesions in said extremities. Upon being captured in the first instance by a Clinical Dermatologist, the opinion of the Cardiovascular Surgery service was suggested to rule out cardiac abnormalities, where, based on the clinical data detailed above, and in a cardiovascular interrogation, dyspnea on moderate exertion was reported, and a systolic murmur was heard. in aortic focus, so a sample was taken for blood culture 1 and 2 + antibiogram, as well as antibiotic treatment for 3 months until obtaining an antibiogram, a transthoracic vs transesophageal echocardiogram was indicated to confirm the diagnosis of IE. Echocardiographic studies revealed vegetations in the aortic valve that we reveal in (Figure 1). In this transesophageal echocardiography (TEE) image with a short parasternal axis of the aortic valve, the trileaflet morphology is presented, highlighting a vegetation-type lesion (indicated by green arrows) in the region of the commissure between the left coronary leaflet and non-coronary. In the image below, indicated with an orange arrow, you can see the color Doppler that reveals signs of moderate insufficiency of the aortic valve. This finding confirms the diagnosis of infective endocarditis, with a high risk of septic embolization, supported by the theory of microembolizations in the left region of the heart. The patient received antibiotic treatment for 21 days and underwent aortic valve replacement surgery with a favorable short-term clinical evolution. His blood culture was positive for Gram-positive Coco-S. Aureus sensitive to fourth generation cephalosporins, and he completed 3 months of antibiotic therapy after his recovery.

In the transesophageal echocardiography (TEE) image with a four-chamber apical axis (figure 2), according to the protocol used to evaluate valve integrity and possible injuries, the right cardiac chambers (tricuspid - white arrow) were examined. No presence of vegetations or signs of valve insufficiency were observed. Likewise, the five-chamber apical axis was used to examine the left cardiac chambers (mitral and aortic), where the presence of vegetation caused by aortic infective endocarditis that protrudes in diastole was confirmed (blue arrows).

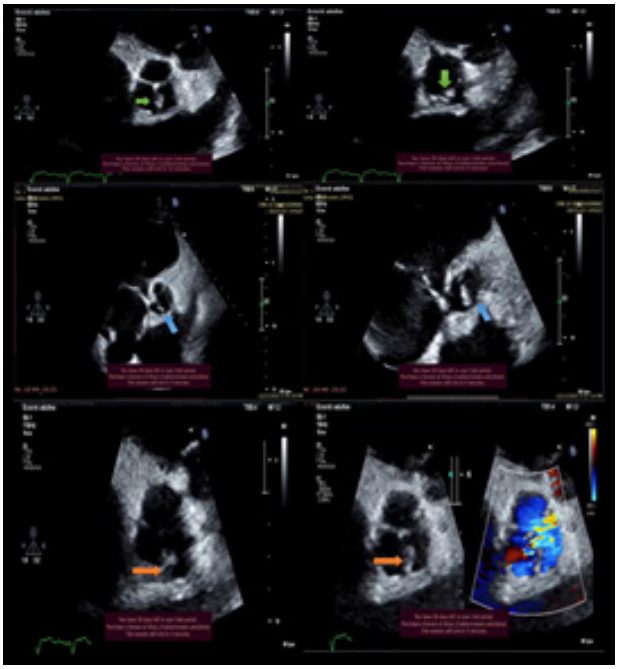

Figure 1. Transesophageal echocardiography (TEE) image with a short parasternal axis of the aortic valve

History

In 1893, Osler, when he described the nodules that would later bear his name, postulated the possibility that they were due to tiny embolic foci (1). Subsequently, in the successive histological contributions of Osler nodules collected in the literature, they are described as embolic phenomena with an inflammatory reaction due to an unknown stimulus. Thus, while Merklen

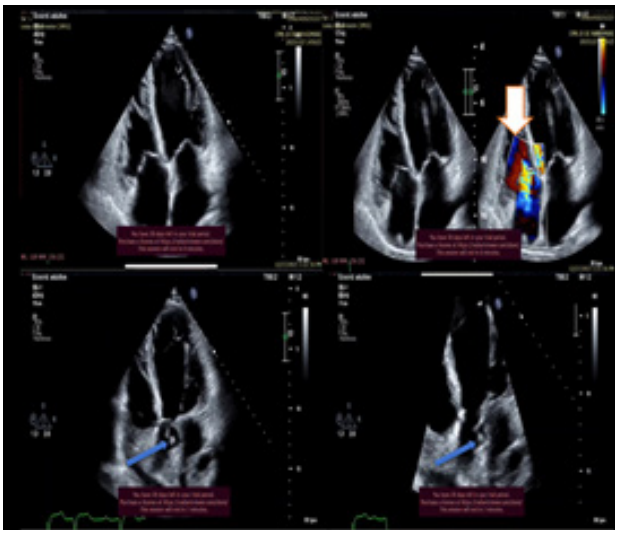

Figure 2. The transesophageal echocardiography (TEE) image with a four-chamber apical axis

and Wolf (2) in 1928 described a perivascular inflammatory cell infiltrate in Osler's nodules, Lian et al. (3), in 1929, found neutrophil infiltrate and proliferation of endothelial cells, and Cornil et al. (4), in 1939, did not find microorganisms in the lesions. Subsequently, Von Gemminger and Winkelmann (5) once again found foci of sterile embolism in Osler's nodules. In 1976, Alpert et al. (6) studied the biopsies of Osler's nodules and in the histological findings they found micro abscesses in the papillary dermis and microembolic in the deep dermis. These lesions resemble the histological data described by Kerr for Janeway lesions (7).

Natural history

Episodes of IE, 35% are considered right, 50% left and 15% mixed. Within this (50%) of patients with left or mixed endocarditis, Osler nodules were present, but they were not found in any of the patients with right IE. In all those who obtained samples taken by puncture aspiration, gram-positive cocci were observed in clusters in the Gram stain and growth of Staphylococcus aureus was obtained with the same antibiotic type as those isolated in the blood cultures. In the only case in which a biopsy of the nodule was performed, septic thrombi were observed in the microcirculation.

Clinical Manifestations

Cutaneous manifestations of infective endocarditis include petechiae, subungual hemorrhages, Osler's nodules, and Janeway lesions (8). Osler's nodules are painful erythematous nodular skin lesions, located preferably on the pads of the fingers. The histological nature of these lesions is doubtful (9, 10). Classically, they were considered immunologically mediated vasculitic lesions without micro abscess formation, a concept that continues to be used in textbooks (8) and in the new diagnostic criteria for endocarditis by Durack et al. (11). In the most recent literature, it is reported that biopsies of Osler's nodules show histological data of microembolisms with positive cultures (9, 10). The objective of this work is to describe the clinical, microbiological, and histological data of five infectious endocarditis (IE) episodes with Osler nodules in intravenous drug users (IPDUs). Osler nodules and Janeway lesions are different clinically (10), the former are painful, erythematous nodular lesions located on the pads of the fingers and the latter are painless hemorrhagic lesions located on the palms and soles (12). Osler nodules are skin lesions that are not pathognomonic of endocarditis and have also been described in typhoid fever, systemic lupus erythematosus, gonococci, and nonbacterial thrombotic endocarditis (13,14), but they are lesions that should make the clinician suspicious. The presence of IE. Thus, cases have been described in which Osler's nodules have been the physical sign that has led the diagnosis to endocarditis (15, 16), on some occasions due to microorganisms.

Figure 3 describes internal palmar side of left hand, internal palmar aspect of the right hand, dorsal side of the right hand, Vascular and thrombotic Janeway lesions in the pads of all the fingers of the plantar region.

Complementary Diagnostic Methods

Gram stain and culture of aspirated material from Osler's nodules has a high profitability in the etiological diagnosis of IE in parenteral drug users. The presence of Osler nodules in a patient with IE should suggest that the location is left. These data suggest that Osler's nodules in IE due to S. aureus in the PDU originate because of microvascular septic embolisms.

Figure 4 presents the clinical-microbiological characteristics observed in five patients diagnosed with infective endocarditis who exhibit the presence of Osler's nodules where the average age is between the second and third decade of life, all with a history of venipuncture for drug addiction. IE on the left side of the heart prevails, and the main

Figure 3. Description: A): INTERNAL PALMAR SIDE OF LEFT HAND: Janeway lesions: petechiae, subungual hemorrhages in the palm and toe of the second and third fingers. B) INTERNAL PALMAR ASPECT OF THE RIGHT HAND: Osler nodules + painless hemorrhagic Janeway lesions on the fourth finger. C) DORSAL SIDE OF THE RIGHT HAND: Presence of Osler's nodules: painful erythematous nodular skin lesions, located on all the toes of the fingers. D and E): Vascular and thrombotic Janeway lesions in the pads of all the fingers of the plantar region

CARACTERISTICAS CLÍNICO - MICROBIOLÓGICAS EN CINCO PACIENTES CON ENDOCARDITIS INFECCIOSA Y NODULOS DE OSLER

PACIENTE	EDAD (AÑOS)	SEXO	VÁLVULA AFECTADA	MICROORGANISMOS EN LOS HEMOCULTIVOS	LOCALIZACIÓN DE NÓDULOS DE OSLER	TINCIÓN DE GRAM	MICROORGANISMOS EN EL CULTIVO	(ETE) POSITIVO	DURACIÓN DE LA EI (DÍAS)
1	25	F	AORTICA	S. AUREUS	DEDOS DE MANOS Y PIES	CG+	S. AUREUS	SI	5
2	23	M	MITRAL Y TRICÚSPIDE	S. AUREUS	DEDOS DE MANOS Y PIES	CG+	S. AUREUS	SI	10
3	35	M	MITRAL	S. AUREUS	DEDOS DE MANOS Y PIES	CG+	S. AUREUS	SI	15
4	35	M	MITRAL	S. AUREUS	DEDOS DE MANOS Y PIES	CG+	S. AUREUS	SI	7
5	32	F	AORTICA	S. AUREUS	DEDOS DE MANOS Y PIES	CG+	S. AUREUS	SI	8

Figure 4. The clinical-microbiological characteristics observed in five patients diagnosed with infective endocarditis

agent is S. Aureus, with clinical correlation with the location of Osler's nodes in the fingers and toes, as we present in this case, and the estimated duration of IE was 5-10 days.

For all these reasons, Alpert et al. suggest that Osler nodules and Janeway lesions, clinically distinct, are similar in pathogenesis because of septic emboli (17). Other later authors defend the same pathogenic position (9,10). The only one of our cases in which we have a biopsy supports the findings of Alpert et al. of the septic microembolic origin of Osler's nodules. Despite these findings, Osler's nodules are still considered immunologically mediated lesions. In this sense, the new diagnostic criteria for endocarditis by Durack et al. (11) Osler's nodules, Roth's spots, and glomerulonephritis secondary to IE are still considered to be immunologically mediated.

Discussion

The diagnosis of IE in PRP and UDVP users can be challenging due to the diversity of symptoms and lack of specificity. The presence of Osler Nodules and Janeway Lesions and their correct identification are a clinical sign of high importance for premature detection and effective treatment. Although in general medical practice it may be difficult to be related to finding these injuries and that is why we are sure that this contribution would be a useful tool for the first and second level doctor, when encountering these injuries, it can alert the doctor about possible cardiac involvement. Furthermore, the social stigma related to UDVP and its impact on medical care in developing countries is highlighted. The same microorganisms have been isolated in the cultures of Osler's nodules as in the simultaneous blood cultures (10,17) and on some occasions the microorganism has only been identified in the lesions and not in the blood cultures (9, 18). In our case series, the microorganism was isolated both in blood cultures and in Osler's nodules. The Gram stain of the sample obtained by aspiration of the Osler nodule allowed an approximate diagnosis of the microorganism responsible for the endocarditis, which helped to establish antibiotic treatment more appropriately. Another aspect that we highlight is that Osler nodules were only observed in endocarditis that affected the left valves and not the right ones, which supports the emboligenic origin of Osler nodules. The safe performance of autologous venipuncture and facial mesotherapy requires in-depth knowledge of anatomy, proper technique, and asepsis protocols. Lack of medical training can significantly increase the risks and likelihood of complications.

• Complications of Autologous Venipuncture:
• Infections: Cases of local infections at the puncture site have been reported, with a risk of bacteremia.
• Hematomas and Hemorrhages: They can occur when performing the puncture, especially in inexperienced hands.
• Allergic reactions: Possible development of allergies to materials used in the extraction and processing of PRP.

Conclusions

The evaluation of Osler Nodules and Janeway Lesions is crucial in the suspicion of IE in users of continuous venipuncture for aesthetic procedures and IVDU. The stigmatization associated with DUVP may affect the patient's disclosure of relevant information. The importance of a comprehensive and non-judgmental approach is emphasized to improve the care and management of these cases. Experts recommend performing puncture

aspiration and, in another case, biopsy of an Osler nodule, with Gram stain and culture of the sample. Based on our experience, we recommend that when Osler nodules are detected, a sample should be taken early by puncture-aspiration and a Gram stain and culture should be performed. This can provide quick and accurate information on the etiology of the nodules. EI in the UDVP. Autologous venipuncture to obtain platelet-rich plasma (PRP) and facial mesotherapy are increasingly popular cosmetic procedures. This report examines the risks associated with these practices when performed by cosmeticians or cosmetologists, focusing on complications and safety considerations. Data were collected from clinical cases and literature reviews related to autologous venipuncture and facial mesotherapy. Cases of complications were analyzed and the skills necessary to perform these procedures safely were evaluated.

Aesthetic Doctors, cosmeticians and cosmetologists must receive rigorous and updated training in procedures such as autologous venipuncture and facial mesotherapy to minimize risks. Medical supervision and the application of safe practices are essential to ensure aesthetic results without compromising patient safety.

References

1. Osler W. The chronic intermittent fever of endocarditis. Practitioner, 1893;51:181-90.
2. Merklen P, Wolf M. Participation des endothéliites arteriocapillaries au syndrome de l'endocardite maligne lente. Press Med. 1928; 36: 97-100.
3. Lian C, Nicolau S, Poincloux P. Histophatologie de nodule d'Osler: étude sur l'endoth'eliite de l'endocardite maligne a evolution lente. Press Med. 1929; 37: 497-99.
4. Cornil L, Mosinger M, Jouve A. X. Contribution a l'etude histologique du nodule d'Osler. Ann Anat Pathol. 1936; 13: 675-86.
5. Von Germminger G, Winkelman R. K. Osler's node of subacute bacterial endocarditis. Arch Dermatol. 1967; 95: 91-94.
6. Alpert J.S, Krous H. F, Dalen J. E, O'Rourke Bloor C.M. Pathogenesis of Osler's nodes. Ann Intern Med. 1976; 85: 471-73.
7. Kerr A, Jr Tan J. S. Biopsies of the Janeway lesion of infective endocarditis. J Cutan Pathol, 1979; 6:124-29.
8. Scheld W. M, Sande M. A. Endocarditis and intravascular infections. In Mandell, G.L, Bennett J. E, Dolin R. (Eds.), Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases. 1995. (p. 740-783). Churchill Livingstone.
9. Cardullo A. C, Silvers D. N, Grossman M. E. Janeway lesions and Osler's nodes: A review of histopathologic findings. Journal of the American Academy of Dermatology. 1990; 22: 1088-90.
10. Parikh S. K, Lieberman A, Colbert D. A, Silvers D. N, Grossman M. E. The identification of methicillin-resistant Staphylococcus aureus in Osler's nodes and Janeway lesions of acute bacterial endocarditis. Journal of the American Academy of Dermatology. 1996; 35: 767-68.
11. Durack D. T, Lukes A. S, Bright D. K, Duke Endocarditis Service. New criteria for diagnosis of infective endocarditis: Utilization of specific echocardiographic findings. The American Journal of Medicine. 1994; 9: 200-209.
12. Farrior J. B, III, Silverman M. E. A consideration of the differences between a Janeway's lesion and an Osler's node in infectious endocarditis. Chest. 1976; 70, 239-43.
13. Lerner P. I, Weinstein I. Infectious endocarditis in the antibiotic era. New England Journal of Medicine. 1966; 274(4):199-206.
14. Dusky B. M. Recurrent Osler's nodes in systemic lupus erythematosus. Angiology. 1969; 20: 33-37.
15. Puklin J. E, Balis G. A, Bentley D. W. Culture of an Osler's node. A diagnostic tool. Arch Intern Med. 1971; 127: 296-98.
16. Mennecier D, Debien B, Dupeyron C, Pats B, Rouvier B. Faux panaris d'Osler. Press Med. 1998; 27: 786.
17. Alpert J.S, Krous H. F, Dalen J. E, O'Rourke Bloor C.M. Pathogenesis of Osler's nodes. Ann Intern Med. 1976; 85: 471-73.
18. Yee J, McAllister K. The utility of Osler's nodes in the diagnosis of infective endocarditis. Chest. 1987; 94: 751-52.