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CASE REPORTS

Postsurgical Contact Dermatitis due to Povidone Iodine: A Diagnostic Dilemma[☆]

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application test

Abstract We present 7 cases of postsurgical contact dermatitis due to povidone iodine. The diagnosis was based on the clinical manifestations, the history of exposure, the site of the lesions, and the results of patch tests. This type of dermatitis can develop in the area of surgery or at distant sites exposed to povidone iodine during the surgical intervention. Patch tests with 10% povidone iodine in petrolatum were positive in all patients. Based on the results of the same tests in a control group, we recommend the use of petrolatum rather than water as the vehicle for the diagnosis of this form of contact dermatitis. Repeated open application tests with a commercially available solution of povidone iodine were negative. We conclude that the presence of the solution under occlusion during surgery is necessary both for the symptoms to develop and for the diagnosis to be made. This condition may be underdiagnosed.

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PALABRAS CLAVE

Dermatitis de
contacto;
Antisépticos;
Cirugía;
Povidona yodada;
Pruebas epicutáneas;
Prueba abierta
repetida

Dermatitis de contacto por povidona yodada tras cirugía: un dilema diagnóstico

Resumen Presentamos 7 casos de dermatitis de contacto por povidona yodada (PVP-I) en pacientes sometidos a cirugía. El diagnóstico se basó en la clínica, la historia de exposición, la localización de las lesiones y el resultado de las pruebas epicutáneas. La dermatitis puede aparecer en el área quirúrgica, pero también en zonas distantes, aunque expuestas a la PVP-I y sometidas a oclusión durante la intervención. Las pruebas epicutáneas con PVP-I al 10% en vaselina fueron positivas en todos los pacientes. Aconsejamos utilizar este vehículo y no agua para el diagnóstico de estas dermatitis de contacto, basados en los resultados de estas pruebas en un grupo control. La prueba abierta repetida con la solución comercial de PVP-I fue negativa. Concluimos en la necesidad de que exista una oclusión, tanto para la aparición de los síntomas clínicos como para el diagnóstico de esta dermatitis de contacto, que puede estar infradiagnosticada.

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Introduction

Iodine-based compounds have been used for centuries as antiseptics and disinfectants. However, it is only in the past 20 years that their use has become widespread in the Spanish health service, after they became the surgical antiseptics of choice in place of the mercury derivatives, which were also known during the 20th century to be contact sensitizers. The iodine compound most widely used at the present time is povidone-iodine (polyvinylpyrrolidone-iodine [PVP-I]).

Contact dermatitis due to PVP-I has never been considered common,¹ particularly in view of such widespread use. There are isolated reports of irritant^{2,3} and allergic⁴⁻⁹ contact skin reactions, but it is often difficult to discriminate between the two types of contact dermatitis because of the lack of consensus on the concentration of the iodinated compounds (PVP-I and/or iodine) and the vehicles to be used when performing diagnostic patch tests.¹⁰⁻¹⁴

We describe 7 patients referred to the skin allergy unit of the dermatology department for the diagnosis and treatment of contact dermatitis after undergoing surgery in various operating rooms in our hospital. In 5 of the patients the dermatitis developed in the surgical field 24 to 48 hours after the operation, but in 2 patients it appeared at distant skin sites. The antiseptic used in all cases was Betadine solution, which, in Spain, contains the following components: PVP-I, glycerol, disodium phosphate, citric acid, sodium hydroxide, nonoxynol-9, and water.

The diagnosis of contact dermatitis due to PVP-I was based on the clinical manifestations, a history of exposure, the site of the lesions, and, most relevantly, the results of the skin tests.

Case Descriptions

Case 1

This patient was a 51-year-old woman who had undergone surgery in the gynecology operating room for uterine prolapse. Twenty-four hours after the operation she developed a subacute, erythematous dermatitis with a burning sensation, affecting the gluteal region and posterior aspect of both thighs (Fig. 1).

Case 2

The patient was a 67-year-old man in whom surgery had been performed to the right hand under general anesthesia in the orthopedics operating room. Twenty-four hours after the operation he developed acute dermatitis in the area of the surgical field, affecting the right upper arm and forearm distal to the site of the pneumatic tourniquet.

Case 3

This patient was a man aged 60 years who had undergone surgery under local anesthesia in the dermatologic operating room for a melanocytic nevus on the back. After the operation, the area had been swabbed with Betadine and covered by an occlusive dressing (Hartman Cosmopore E). When the



Figure 1 Subacute dermatitis of the buttocks and thighs due to occlusive contact with the sheets and the operating table impregnated with PVP-I in the gynecology operating rooms (Case 1).



Figure 2 PVP-I-induced acute dermatitis that outlines the shape of the occlusive dressing used after the excision of a nevus in the dermatology operating room (Case 3).

patient was seen 5 days after the operation, he presented an area of acute eczema with a morphology that mirrored the shape of the dressing (Fig. 2).

Case 4

The patient was a 55-year-old man who underwent bone biopsy in the orthopedics operating room for a tumor of the right tibia. Two days after the operation he developed dermatitis affecting the surgical wound and operating

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