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Case Report

Allergic Response to Pace Maker with Non Healing Wound

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ABSTRACT

Allergic reactions to pacemaker components are rare but well known . We present a case who developed pain, erythema and serosangious discharge immediately after permanent pace maker (PPM) implantation. There was no evidence of infection from ancillary investigations and the whole pacemaker system was explanted. New system was implanted on the opposite side and the patient once again had erythema and swelling of the wound with scant discharge. Hemogram revealed Eosinophillia and also IgE levels were increased. Patient was started on steroids which resulted in prompt healing of wound.

Key words: *Allergy, permanent pacemaker, IgE, steroid*

İyileşmeyen Kardiyak Kalp Piline Alerjik Reaksiyon

ÖZET

Kalp pili bileşenlerine karşı alerjik reaksiyon nadir fakat iyi bilinen bir durumdur. Bu makalede kardiyak kalıcı peacemaker implantasyonundan hemen sonra ortaya çıkan ağrı, kızarıklık ve seroanjiyöz akıntı gelişen bir olguyu sunduk. Hastanın tetkiklerinde enfeksiyon bulgusu yoktu ve tüm peacemaker sistemi çıkarıldı. Diğer göğüs tarafına yeni sistem takıldı ve hastada yine eritem ve hafif akıntı ile birlikte yara yerinde şişlik oldu. Hemogramda eozinofili mevcuttu ve aynı zamanda IgE düzeyi artmıştı. Hastaya yara yerinin hemen iyileşmesi ile sonuçlanan steroid tedavisi başlandı.

Anahtar Kelimeler: *Allerji, kalıcı kalp pili, Ig E, steroid*

INTRODUCTION

Allergic reactions to pacemaker are rare. Allergic reactions have been seen to epoxy resins or to metals used for pacemaker battery lik titanium, mercury and nickel. In reported cases there have been diverse allergic reaction varying from pain at local site, erythema, swelling, discharge and dermatitis. The time from implant to onset of symptoms is also variable ranging from few days to seventeen months. Its rare to see such cases and we present a case with allergy to pace maker (1-3).

CASE

A sixty five year old diabetic female presented to our emergency room with complaints of syncope and fatigability since one day. She was taking metformin 1 gm BD for diabetes and losartan 25 mg BD for hypertension. Her examination revealed pulse rate of 36 per minute and blood pressure of 170/80. Immediate ECG was done which revealed high grade AV block. Patient was put on transvenous femoral temporary pacing. Her baseline investigations (Blood counts, renal function, Blood sugar, coagulogram) were normal. Echocardiography revealed concentric left ventricular hypertrophy and grade one diastolic dysfunction. Dual chamber permanent pacemaker (St. Jude Medical Verity ADX XLDR 5356) was implanted in left infraclavicular area. Patient was put on ceftriaxone-sulbactam 1.5 gm I.V BD. On day three there was a boggy swelling at pacemaker pocket site with mild serosangious discharge from wound which gradually increased. Immediate swab culture and two

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sets of blood cultures were taken. Teicoplanin 400 mg IV OD and amikacin 500 mg IV BD were added. For five consecutive days pocket discharge continued despite daily wound toilet (saline irrigations) under aseptic precautions. During this period patient was all along afebrile. White cell count was normal, swab culture and blood cultures were sterile. Possibility of pacemaker pocket infection was thought, it was decided to remove the pacemaker system on left side and put fresh system on right side after seven days. Till then patient was put on temporary pacing lead through internal jugular vein. After removing pacemaker the discharge from wound decreased and diminished by fifth day. A new dual chamber pacemaker (Vitatron C60DR,DDD) was implanted on right side. On second post-operative day the wound appeared red, angry looking, swollen but there was no discharge. Next day it had increased in size and there was scant serosangious discharge from wound. Blood counts once again revealed normal total white count except for eosinophilia. Blood cultures and swab cultures were once again sterile. Ciprofloxacin was added to previous regimen of teicoplanin and amikacin. In view of eosinophilia it was decided to send IgE immunoglobulin levels. IgE levels were markedly raised 2341 IU/mL (0-380 IU/mL.). Patient was given 200 mg of Hydrocortisone IV stat followed by prednisolone 1 mg/kg /day and antihistaminic. Post steroids, discharge stopped, erythema settled down and by the end of one week wound dried up. Patient continued steroids for one month and then gradually tapered off. Repeat IgE levels at one month were normal. Antihistaminic were continued. At present patient continues on our follow-up.

DISCUSSION

Allergic reactions to pacemaker are rare. It was first reported by Raque and Goldschmidt in 1970 in a patient who developed eczematous dermatitis after three weeks of implantation (1). Allergic reactions have been seen to epoxy resins (2) or to metals used for pacemaker battery lik titanium, mercury and nickel (3-5). In reported cases there have been diverse allergic reaction varying from pain at local site, erythema, swelling, discharge and dermatitis (4). The time from implant to onset of symptoms is also variable ranging from few days to seventeen months (4). Differential diagnosis includes pocket infection and reticular telangiectatic erythema caused by local venous obstruction (6). Pocket infection presents with fever, redness, tenderness, chills, elevated ESR, leukocytosis and positive blood or swab cultures. Some pacemaker infections may present with mild symptoms or may be culture negative (7). The absence of these symptoms, signs, findings and recurrence of these symptoms when implanted at different site suggests pacemaker allergy. The diagnosis of pacemaker allergy is confirmed by positive skin patch testing to any of the components of the pacemaker device along with absence of infection (8). Treatment is removal of offending agent. Other options are complete coating of offending agent in a proven non-allergic substance documented by patch testing (9). Though discharge in pacemaker allergy is rare, it was seen in our patient. Verbov (10) reported a patient in whom discharge developed from titanium-encased pacemaker implanted on four occasions. We thought of pacemaker infection and explanted it but all these features once again recurred after implantation of new system at a different anatomic site. All these features along with eosinophilia and negative investigational workup for infection was suggestive of pacemaker allergy, which was further supported by very high IgE levels. Patient was put on empirical course of steroids which resulted in rapid healing of the pocket site. In world literature there have been dismal results of steroids in such situations and steroids increase the possibility of false negative test if administered before patch testing (9,11).

Pacemaker allergy is a rare condition, its recognition is important in managing such patients and infection should be ruled out before making diagnosis of pacemaker allergy. Though patch testing is at present the best way of diagnosing, we suggest IgE levels should be done as supportive investigation in these patients as it is marker of allergic reactions.

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