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CASE REPORT

A TODDLER'S OSTEITIS OF THE LEFT UPPER LIMB AFTER BCG VACCINATION: A CASE REPORT

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ABSTRACT

Introduction: Serious complications following vaccination with BCG are rare. Among these complications, osteitis is of particular interest because it is more common and appears to occur in immune competent patients. Despite the diagnostic criteria proposed by Foucard and Hjelmsted in 1971, post-vaccination BCG osteitis is rarely recognized in pediatric practice, with only 25% of cases being diagnosed. **Observation:** We report the case of a 12-month-old infant, who presented to pediatric emergencies for partial functional impotence of the upper left limb, evolving for 2 months in a context of apyrexia and of conservation of the general state. The patient was vaccinated with BCG at day 15 of life. The injection site was the left deltoid. The dose and type of vaccine used was not specified. He had not had any local post-vaccination complications, nor recent trauma of the limb, and there was no known tuberculous contusion in the environment. **Results:** On examination, the infant had pain while the stretching the left arm, relieved by the limb against trunk position. The palpation had found a firm, painless, non-inflammatory mass of the anterior aspect of the upper third of the left arm. The radiograph of the left shoulder had revealed a lytic metaphyseal-diaphyseal left humeral image. MRI showed a lesion process of the upper extremity of the aggressive left humerus with invasion of neighboring structures. A bone biopsy performed had objectified granulomatous osteitis without caseous necrosis. The tuberculin IDR was phlyctenular, reaching 18 mm. The rest of the balance sheet looking for other locations was negative. Anti-bacillary triple therapy (rifampicin, pyrazinamide, isoniazid) was started. The evolution after 6 months of treatment remains favorable, with persistent apyrexia, preserved appetite, and weight gain of 3 kilograms. **Conclusion:** Osteitis after BCG vaccination is a rare, underestimated and difficult to diagnose. It should be considered in small children who have already received BCG vaccination, have had no contact with tubercolosis and have clinical findings consistent with osteitis, but do not respond to conventional antibiotics. It has a better prognosis, with a good response to anti-bacillary and surgical treatment. Clinical trials are needed to codify therapeutic management.

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INTRODUCTION

Serious complications following vaccination with BCG are rare. Among these complications, osteitis is of particular interest because it is more common and appears to occur in immunocompetent patients. Despite the diagnostic criteria proposed by Foucard and Hjelmsted in 1971, post-vaccination BCG osteitis is rarely recognized in pediatric practice, with only 25% of cases being diagnosed.

CASE REPORT

We report the case of a 12-month-old infant, who had presented to pediatric emergencies for partial functional impotence of the upper left limb, evolving for 2 months in a context of apyrexia and conservation of the general state. The patient was vaccinated with BCG at day 15 of life. The injection site was the left deltoid. The dose and type of vaccine used was not specified. He had not had any local post-vaccination complications, nor recent trauma of the limb, and there was no known tuberculous contusion in the environment. On examination, the infant had a pain while stretching the left arm, relieved by the limb against trunk position. The palpation had found a firm, painless, non-inflammatory mass of the anterior aspect of the upper third of the left arm. The radiography of the left shoulder showed a left metaphyseal-diaphyseal humeral image (image 1). MRI showed an aggressive lesion of the upper extremity of the left humerus with invasion of neighboring structures (images 2 and 3). CRP was normal at 4.74 mg / l, and ESR at 27 mm (1st hour). The blood count showed a thrombocytisis at 567,000 / mm3, and normal leukocyte and hemoglobin levels for age.

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A bone biopsy performed had objectified granulomatous osteitis without caseous necrosis.

Image 1. radiograph of the left shoulder showing a lytic lesion of the metaphyseal-diaphyseal part of the left humerus

Image 2. Front vue; MRI showing an aggressive lesion of the upper extremity of the left humerus with invasion of neighboring structures

Image 3. Sagittal vue of the bone lesion

AFB smear and culture were negative. The tuberculin IDR was phlyctenular, reaching18 mm. The remainder of the assessment had not found other bone or extra-osseous locations. Anti-bacillary triple therapy (rifampicin, pyrazinamide, isoniazid) was started. The clinical evolution over 6 months of treatment remains favorable, with regression of local signs, persistent apyrexia, preserved appetite, and weight gain of three kilograms. While a big improvement in radiological findings have been observed.

DISCUSSION

Osteitis after BCG vaccination is rare. The incidence in the world is 0.39 per thousand vaccinations, comprising only a quarter with bacteriology and positive histology (1). Symptoms may be vague and present up to 30 months after vaccination (usually between 8 to 24 months) (1, 2). The general state of the child remains preserved. The lesion may be distant from the injection site and may disappear spontaneously within 40 months of vaccination (3). The most common radiological involvement is a single, well-defined destructive lesion of the metaphysis and / or epiphysis of the long bones with swelling of the soft tissues and the presence of a periosteal reaction. Biology highlights a mild inflammatory syndrome, which contrasts with "classic" osteomyelitis or septic arthritis. The diagnostic reference test is early biopsy of the lesion with AFB detection and culture (1). The histology can establish lesions of tuberculosis without distinguishing between an attack by the bacillus of Koch, Calmette and Guérin, or other mycobacteria (3). Up to 50% of cultures are negative (1). Once proven, BCG post-vaccination osteitis should be treated with anti-bacillary drugs. There is no consensus about the molecules used, as well as the duration of treatment. A surgical approach to obtain a sample is indicated, however, because medical treatment generally gives good results, debridement should be avoided. The cases reported in the literature healed fairly quickly. The degree of long-term disability after BCG post-vaccination osteitis depends on the degree of bone and joint destruction (2).

Conclusion

Osteitis after BCG vaccination is a rare complication that is underestimated and difficult to diagnose. It should be considered in small children who have already received BCG vaccination, have had no contact with tuberculosis and have clinical findings consistent with osteitis, but do not respond to conventional antibiotics. It has a better prognosis, with a good response to anti-bacillary and surgical treatment. Clinical trials are needed to identify the most influential vaccine strains, and to codify therapeutic management.

Abbreviations

BCG: Bacillus Calmette-Guerin
MRI: magnetic resonance imaging
IDR: intradermal reaction
CRP: C-reactive protein
ESR: erythrocyte sedimentation rate
AFB: Acid- Fast Bacilli

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