


Giant “turtle-egg tumors”: a forgotten complication of quinine injections

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A 92-year-old man, with no history of chronic diseases, presented to our emergency department (ED) because of the presence of two “nodules” in both gluteal regions that were causing pain and preventing him from sitting down. The patient reported that the nodules were long standing, and they had appeared more than 70 years before.

At physical examination, the patient appeared in good general condition despite his advanced age. Blood pressure was 115/60 mmHg, pulse rate was 68 beats/min and respiratory rate was 12 breaths/min.

At inspection, there were two voluminous masses (approximately 20 cm in diameter) located in the supero-external quadrant of both gluteal regions (Fig. 1a, c). The masses were firm, non-tender, with fibrous consistency.

A neoplastic etiology was considered, even if the bilateral location and the growing rate made this hypothesis unlikely. The supero-external quadrant of the gluteus is the area of administration of intramuscular (IM) injections, thus a complication of this procedure was also considered.

Gluteal hematoma is the most common complication of IM injection. However, it is an acute complication in patients taking anticoagulants, and it does not have the aspect of a well-delimited mass. Gluteal abscess secondary

to IM injections is usually associated with local (tumor, rubor, dolor, calor, functio lesa) and systemic (fever) inflammatory signs, and requires urgent surgical drainage and antibiotic treatment.

In the 1930s, when he was around 15 years old, the patient received intramuscular quinine injections for the treatment of malaria. Several years later, he started complaining of gluteal pain and of the appearance of nodules, which slowly grew during the time (70 years), causing discomfort and the impossibility of sitting down.

A US-scan was performed, showing the presence of bilateral capsuled masses, with hypo-anaechoic content and peripheral calcifications.

The patient was discharged from ED with a prescription for painkillers, and he was scheduled for surgical treatment at our ED outpatient setting.

Surgical excision was performed in two different day-surgery sessions by Dr. G. Pacilli (Fig. 1d). The masses were located in the subcutaneous adipose tissue, they had a solid consistency, with a hard peripheral capsule. The internal content was a brown fluid material. A complete excision was possible allowing a per primam healing (Fig. 1e). The management of the surgical wound was done by our nurses (see acknowledgments section).

The 23 × 7 × 10 cm surgical specimen was composed of cutis and subcutis with adjacent soft tissues. Grossly, on cutting there was a cystic neoformation measuring 15 cm in maximum diameter, which contained necrotic and hemorrhagic material. On histological examination, in the lower dermis and subcutis, abundant cicatricial fibrous tissue along with chronic inflammation with mononucleate histiocytes and foreign body giant cells were disposed all around a central core liquefacted necrotic material. Macroscopic and microscopic findings were compatible with injection site lipogranuloma.

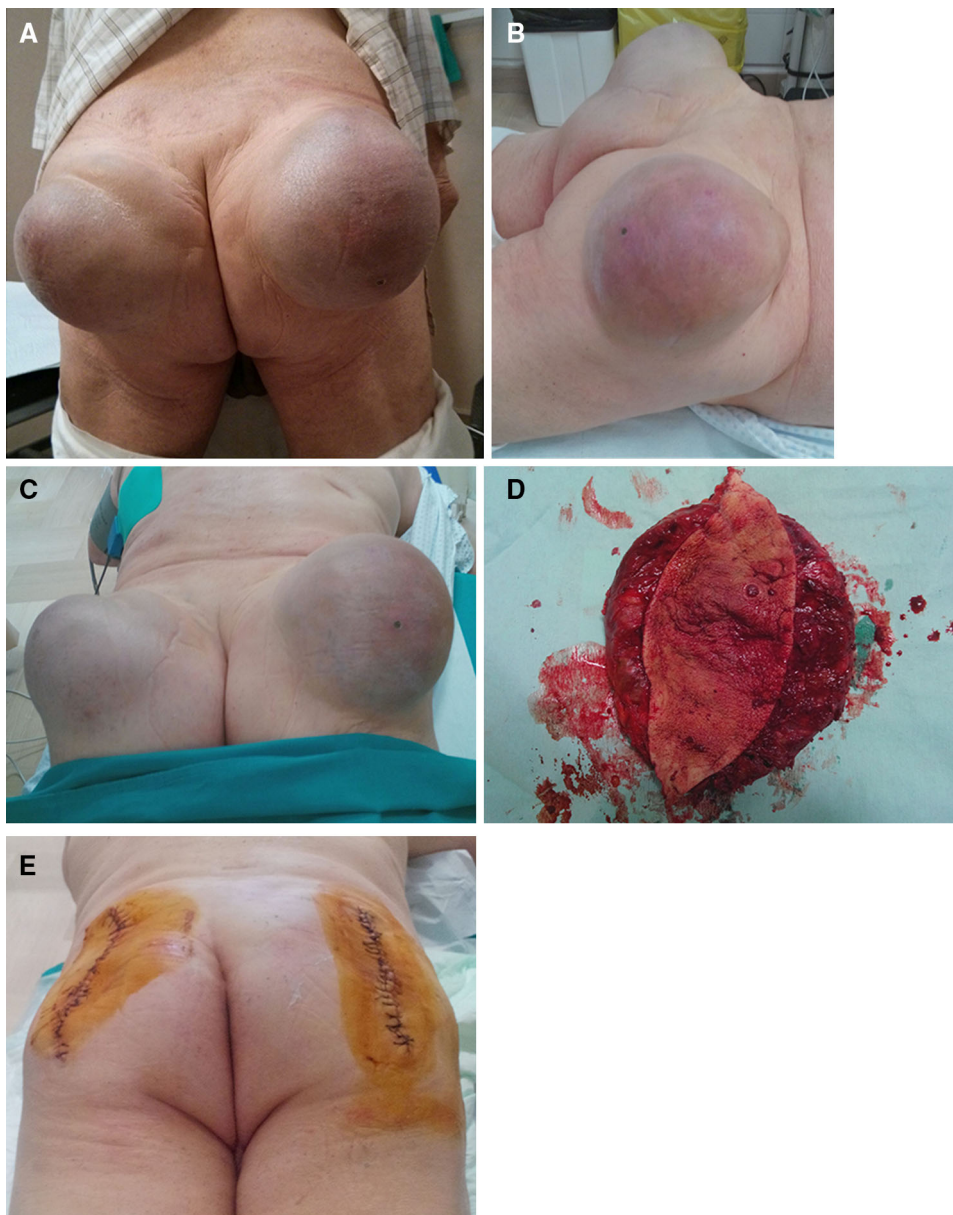
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Fig. 1 **a–c** Clinical appearance of bilateral gluteal masses. **d** Macroscopic appearance of the surgical specimen. **e** Per primam healing of gluteal regions after mass excision



Injection site granuloma represents a possible complication of IM drug administration, in particular when the drug is delivered too superficially in the subcutaneous fat tissues, as “intralipomatous” rather than “intramuscular” injection [1]. The drug produces liponecrosis and inflammation, and it causes a chronic process that evolves into fibrosis and calcification [1].

In the first decades of twentieth century, IM quinine injections represented a commonly prescribed treatment for malaria. The sclerosing action of quinine salts was the main cause of local complications, such as gluteal nodules, injection site granulomata, sciatic paralysis and muscle necrosis [2, 3]. Some of these complications, such as gluteal nodules, have been described to appear even 25 years after injections. With the advent of oral drugs for the

treatment of malaria, intramuscular quinine administration was abandoned, and the side-effects related to quinine injection became infrequent and almost forgotten. Nowadays, these complications are uncommon in Western Countries, both because intramuscular quinine is not used anymore, and because people who might have developed these complications are very old or already deceased. At the present time, injection site granulomata can be seen as complications of commonly used drugs, such as painkillers (i.e., diclofenac) [4].

In 1964, Steel used the definition of “turtle-egg tumor” to describe the radiological appearance of similar gluteal nodules as a late complication of IM quinine injection [3]. These were his words: “a roentgenogram of the pelvis suggesting that the patient was in the process of hatching

out a clutch of turtle eggs is fairly conclusive evidence of previous malarial infestation and treatment with intragluteal quinine”.

One year after the excision of the “turtle-egg tumors” the patient is in good general condition, and he can now comfortably sit down.

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Compliance with ethical standards

Conflict of interest Authors declare that they have no conflict of interest.

Statement of human rights and animal rights All procedures performed in studies involving human participants were in

accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed consent None.

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