A urine finding associated with obesity

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Corn starch can be identified by its physico-chemical property of producing Maltese cross birefringence under polarized light. In the urine there are few other compounds that may cause a similar Maltese cross picture: cholesterol esters in nephrotic syndrome and 2,8 dihydroxyadenine (2,8DHA) crystals in rare patients with congenital adenine phosphoribosyltransferase deficiency.

Both talc and starch, which has replaced the former in most medical applications because it is degradable, have been associated with foreign body granuloma and inhalation lung injury. For this reason, many medical practices, including our institution, use powder free gloves. Corn starch is a principal ingredient of baby powder. While its use in infants is discouraged by many paediatricians, obese adults frequently make use of baby powder to keep subpannicular and inguinal skin folds dry, as was the case in this patient. Maltese cross artefacts from urine contamination with starch are frequent urine findings in obese patients (Figures 1 and 2).

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Fig. 1. Corn starch crystals in the urine sediment of an obese patient.

Fig. 2. Polarized light microscopy showing typical Maltese crosses of starch crystals.