

Response to “Diagnostic accuracy of dual energy computed tomography and joint aspiration: a prospective study in patients with suspected gouty arthritis”

Sir,
 We read the article by Notzel *et al.* with great interest: the Authors show that the ACR/EULAR gout classification criteria can be applied by first using the results of the dual-energy scanner (DECT) and then those of the joint aspiration, thus avoiding an invasive puncture in a large number of patients (1). We would like to build on the results of this very interesting study. Indeed, the ACR/EULAR criteria take into account either the results of the DECT or those of the joint ultrasound. We therefore worked from the result of Notzel *et al.*, with the assumption that the imaging results could also be used to identify gouty arthritis before a joint aspiration is performed. Our objective was to compare the results obtained by using joint ultrasound and those obtained with the DECT.

We prospectively included 40 patients with undifferentiated monoarthritis compatible with gout hospitalised in the Rheumatology Department of our University Hospital. All patients underwent joint aspiration (when possible), ultrasound examination and DECT of the affected joint. The joint fluid was analysed by an experienced rheumatologist immediately after aspiration. The ultrasound was performed by an expert rheumatologist who looked for the double contour sign and the presence of tophi in the inflammatory joint, as well as in the first metatarsal joints, wrists and knees. DECT was analysed by a rheumatologist experienced in the technique. The operators were blinded to the patient’s clinical and biological data.

In the first analysis (Fig. 1, scenario A), the ACR/EULAR criteria were applied using the results of the DECT first, followed by those of the ultrasound (presence of the double contour sign on at least one of the joints). In a second analysis (Fig. 1, scenario B), they were applied using the ultrasound results first, then those of the DECT. In the third step, these two analyses were repeated, considering that the ultrasound was positive if it showed the double contour sign or a tophus in at least one of the joints analysed. The diagnosis of gout was suggested when the ACR/EULAR score was ≥ 8 .

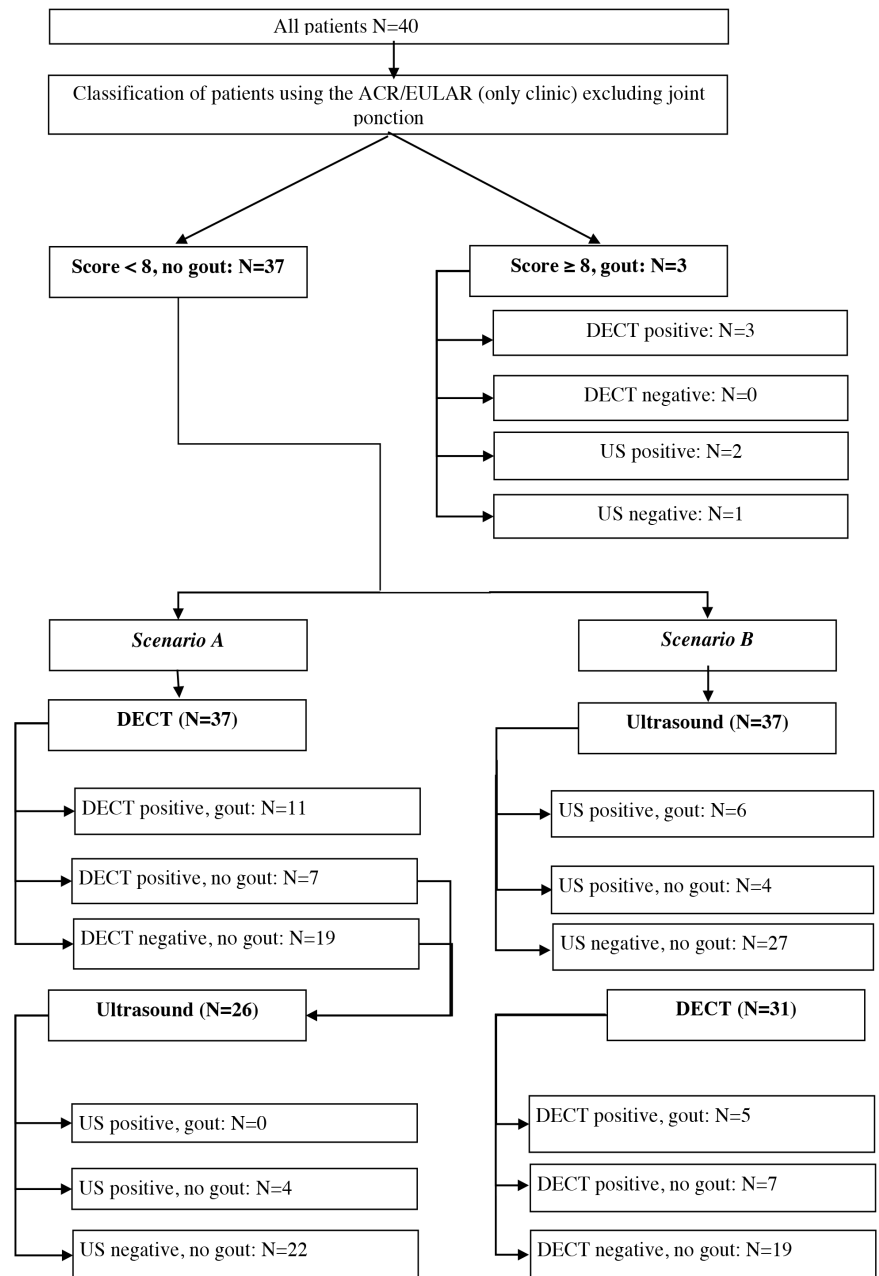


Fig. 1. Diagnostic algorithm with 2 scenarios. Scenario A: DECT followed by ultrasound (US); Scenario B: Ultrasound followed by DECT. Comparison of the two groups did not reveal a significant difference ($p=0.07$).

Three of the 40 patients had a score of ≥ 8 before imaging and were therefore excluded from the analysis (Fig. 1). In Scenario A, DECT was used to obtain a score of ≥ 8 , and to diagnose gout in 11 of the 37 remaining patients. In the other 26 patients, the joint ultrasound did not make any gout diagnostic. In Scenario B, ultrasound was used to obtain a score of ≥ 8 and to diagnose gout in 6 of the 37 patients. DECT was subsequently used to diagnose gout in 5 of the remaining 31 patients. Although a comparison of the 2 groups

did not reveal a significant difference ($p=0.07$, Mac Nemar test), ultrasound analysis showed no evidence of the double contour sign in nearly half of patients with a final diagnosis of gout. These data therefore argue in favour of the DECT. However, ultrasound is less invasive and more accessible. It could therefore be used as a first-line procedure, with DECT being reserved for patients in whom the ultrasound was negative. In the third analysis, gout was diagnosed in 9 cases following the identification of the double contour sign or tophus on

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ultrasound imaging, and DECT revealed 2 cases of gout in the other 28 patients. We therefore believe that including the presence of tophus on ultrasound would be useful to increase the diagnostic performance of ACR/EULAR criteria.

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References

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