P098 Compared endoscopic and microscopic recognition of urinary stones: Preliminary concordance study

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Verzotti G.[1], Daudon M.[2], Meria P.[3], Almeras C.[4], Traxer O.[2], Estrade V.[5]

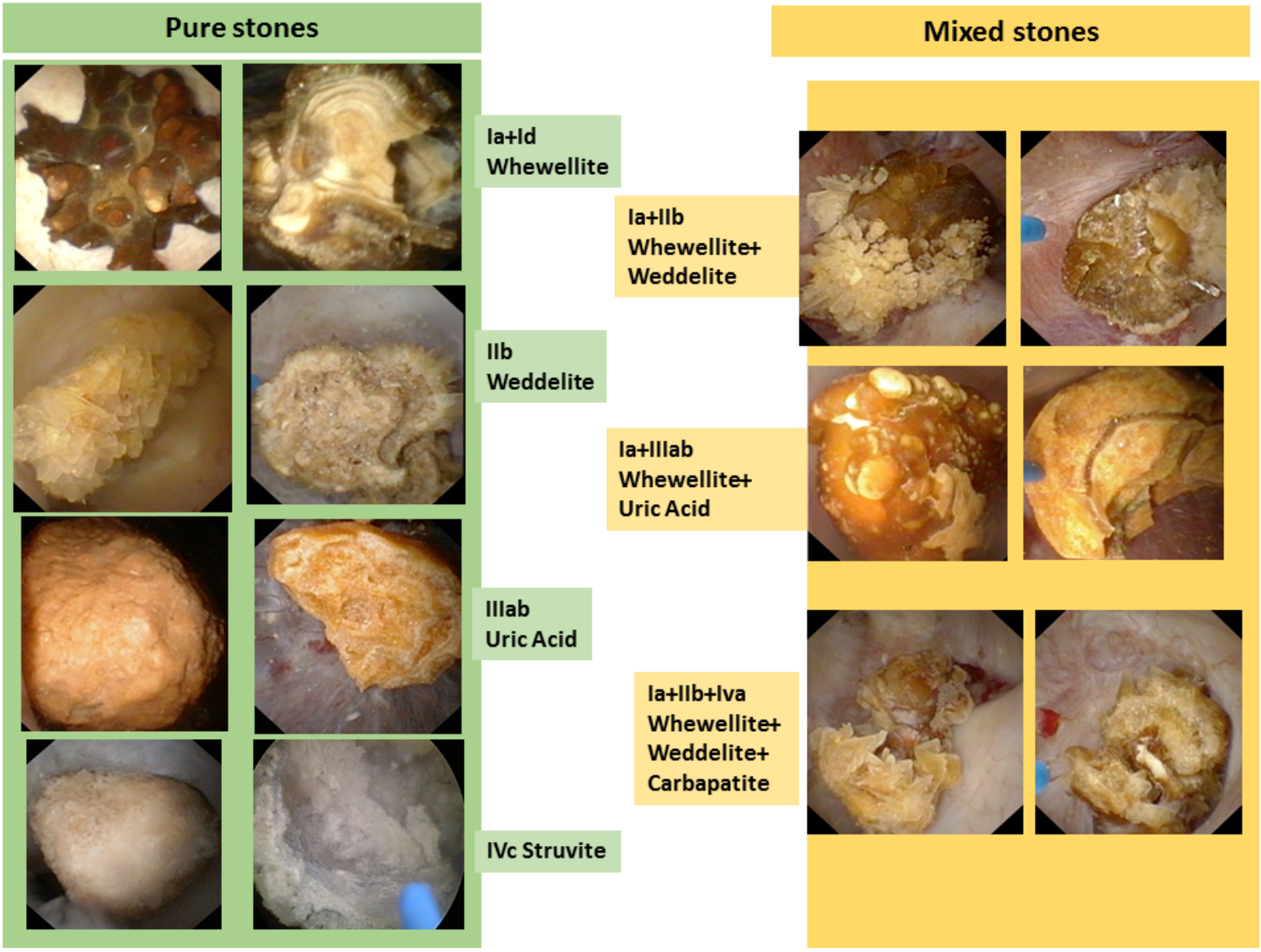
[1]University Hospital Pellgrin, Dept. of Urology, Bordeaux, France, [2]Hopital Tenon, Dept. of Urology, Paris, France, [3]Hopital Saint Louis, Dept. of Urology, Paris, France, [4]Clinique la Croix du Sud, Dept. of Urology, Toulouse, France, [5]Hopital Pellegrin, Dept. of Urology, Bordeaux, France

Introduction & Objectives: The treatment of urinary stones is a matter of fragmentation or even dusting. The microscopic morpho-constitutional analysis (MCA) of a whole urinary stone is then no longer feasible. However, MCA has the best diagnostic concordance to the lithiasic mechanism that has produced the stone. We compared the endoscopic and microscopic stone recognition of urinary stones to validate the Endoscopic Stone Recognition (ESR).

Materials & Methods: Combined and independent urinary stone MCA was performed by two experts in the field of urolithiasis: a urologist and a biologist. During the operation, the former examined the surface and cross-section of the stones with a ureteroscope before fragmentation. The endoscopic stone recognition was performed according to the international MCA stones classification (Daudon). Stone fragments were then sent for MCA and infrared spectrometry. A comparative concordance study between the two approaches (endoscopic and microscopic) was carried out. A Chi2 test was performed to assess this concordance.

Results: 268 files were examined. 7 files were excluded because images were not recognizable (fuzzy images). 7 more files were excluded because laboratory analysis could not be performed (stone powder). In total, 254 files were included in the analysis. This comprised 34 types of stones, including 15 pure and 19 mixed. 15 stones had a specific endoscopic recognition that was not found on infrared examination. The Chi2 difference test found an excellent (p>or= 0.05) concordance for pure stones (Ia+Id) of whewellite (85.7% n=7), (IIb) weddellite (88.2% n=17), (IIIab) uric acid (97,1% n=34), (IVc) struvite (100% n=4) and mixed stones (Ia+IIb) whewellite/weddellite (92.5% n=40), (Ia+IIIab) whewellite/uric acid (76.9% n=13), (Ia+IIb+IVa), whewellite/weddellite/carbapatite (87.5% n=16). Other morphologies have an excellent concordance: Va cystine (100% n=1), VIa proteins (100% n=1), IIb+IVd weddellite/brushite (100% n=3) but too small a number to be considered representative.

Conclusions: This analysis confirms the reliability of ESR for the most frequent pure stones (Ia+Id) of whewellite, (IIb) weddellite, (IIIab) uric acid, (IVc) struvite and mixed (Ia+IIb) whewellite/weddellite, (Ia+IIIab) whewellite/uric acid, (Ia+IIb+IVa) whewellite/weddellite/carbapatite. ESR is a fundamental step in lithiasis. However, it must always be combined with infrared spectroscopy of the fragments of the stone.


Pure stones
Mixed stones
Ia+Id
Whewellite
IIb
Weddelite
IIIab
Uric Acid
IVc Struvite
Ia+IIb
Whewellite+
Weddelite
Ia+IIIab
Whewellite+
Uric Acid
Ia+IIb+IVa
Whewellite+
Weddelite+
Carbapatite