

SSK04-07

Is it Possible to Investigate Archeological Hearts Using CT and MRI? About Five Archeological Hearts

Wednesday 11:30-11:40 AM | SSK04-07 | NA

PURPOSE

Five archeological hearts were found in an archeological site last year. Several graves were found in the basement of a church. In addition to different archeological bones found, five heart shaped lead polls were discovered. These findings were found in vaults from elite class families. At the opening of the polls, findings were very interesting: five well conserved hearts dating from the end on the 16th century, to the beginning of the 17th century.

METHOD AND MATERIALS

Thanks to the embalming process, archeological hearts were well conserved. Each archeological heart has been studied with CT scanner and with MRI, before and after balm extraction, and after rehydration. CT parameters were standard, using a 16 row CT scanner. MRI parameters were difficult to optimize. This was due to lack of hydration of these archeological pieces.

RESULTS

First images acquired were very impressive, but with poor information. This was due to important vegetal embalming process. Hearts were first scanned with their balms. Then, they were carefully "cleaned". Finally, they were rehydrated. CT and MR examinations were performed for each heart. Because of an intra tissue lead diffusion, especially in infra epicardial fat, there was an impressive natural contrast on CT images. This element permitted to identify different heart structures like chambers, valves and coronary arteries. MRI images were hard to obtain because of lake of hydration. Therefore, images after rehydration were relevant and allowed to better identify myocardial muscles

CONCLUSION

Study of archeological smooth tissues like heart is possible using CT and MRI, but it requires a good knowledge of the embalming process and MR technical parameters.

CLINICAL RELEVANCE/APPLICATION

Until now, no radiological examination of archeological hearts was described in the literature data.

FIGURE (OPTIONAL)

http://abstract.rsna.org/uploads/2015/15007811/15007811_kt17.jpg