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GOOD PRACTICE IN COLLECTING SAMPLES FROM HUMAN FETUS WITH FEW GESTATION WEEKS

Abstract: Sometimes when young girls are victim of sexual assault the court determines the interruption of few weeks' gestation pregnancies and the posterior paternity testing to identify the crime perpetrator. In those cases is a good practice to collect samples (blood, skin or oral swabs) by forensic medical experts after the abortion procedure in order to avoid complex and not always successful technical procedures if further are received bones, muscle, paraffin-embedded blocks or, even worst, the whole fetus fixed in formalin.

Introduction

Our Genetic Department performs paternity testing according to court demand. Sometimes when young girls are victim of sexual assault the court determines the interruption of few weeks' gestation pregnancies and the posterior paternity testing to identify the crime perpetrator. If the fetus reference sample is not collected during surgical procedure later we will probably receive bones, muscle, paraffin-embedded blocks or, even worst, the whole fetus fixed in formalin. This will lead to complex and not always successful technical procedures in order to identify their genetic profile. In this context are reported two cases in which legal abortion was made at 15 and 16 gestation weeks. In both cases forensic medical experts were present to perform the collection of reference samples from the mother (blood and saliva) and fetus.

Methodology

It was performed a rigorous sterile preparation of material and work table. In the operating room, just after abortion procedure, the forensic medical experts made an esternotomy with scalpel. The procedure of incision should be made very carefully since heart must remain intact (figure 1). A 5cc blood cardiac sample was collected with needle and syringe in order to make a bloodstain (figure 2). In one of the cases were also collected skin tissue (preserved at -20°C) and an oral swab.

DNA from blood samples, skin tissue and oral swab was extracted by Chelex method [1] and quantified in an ABI Prism 7000 Sequence Detection System (Applied Biosystems). To identify the fetus genetic profile, the DNA extracted from the three types of samples was amplified by PCR with both commercial kits Identifiler [2] and PowerPlex16 [3]. The detection of PCR products was carried out with an ABI Prism™ 310 Genetic Analyzer using internal standards (LIZ-500 and I.L.S. 600) and allelic ladders from each kit.

Results

In all samples were identified complete genetic profiles (17 STRs) that allowed to establishing the fetus paternity. In the case that was also collected an oral swab and skin tissue, the genetic profiles were identical to the one identified in blood.

Conclusions

Blood, skin and oral swabs leads to very good results and are less time consuming and labour intensive with reduced costs than other kind of sample. In cases of interruption of pregnancy is a good practice to collect samples by forensic medical experts after abortion. The coordination between institutions is essential. Court should inform where and when abortion will occur.

References

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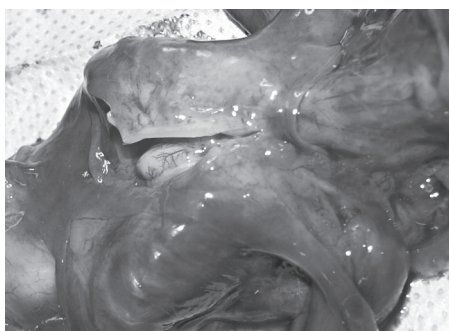


Figure 1 – Heart remains intact after esternotomy with scalpel.



Figure 2 – Collecting a blood cardiac sample.