



A29 Voluntary Interruption of Pregnancy (VIP): STR Profile From Chorionic Villus as Evidence of Sexual Violence

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After attending this presentation, attendees will understand the main issues associated with the isolation of chorionic villus from maternal decidua and subsequent DNA extraction to obtain a genetic profile of the product of the conception. Moreover, the possibility of comparing this profile with that of the suspect represents important evidence used in cases of sexual violence.

This presentation will impact the forensic science community by discussing how the suggested methodology proves useful for the purpose of identifying the profile of a fetus, as well as in cases of sexual violence

where the identity of the suspect is known and there are no other elements that may be used in order to ascertain the truth.

Italian law regulates the voluntary interruption of pregnancy (VIP) under the Law no. 194 of March 22, 1978. VIP is not to be considered as a tool for birth control. However, where the woman reports circumstances by which the continuation of the pregnancy, the delivery, or the maternity would imply severe risks to her physical or mental well-being, within the first ninety days she can address a family guidance center, a social healthcare facility, or a trusted physician. In the presence of conditions signaling the need for urgent intervention, the latter will immediately issue the woman with a certificate stating the emergency. With this certificate the woman can go to one of the centers authorized to carry out the interruption of pregnancies. The institution is bound to send the provincial physician a notice declaring the intervention has taken place as well as sending the relevant documentation on the basis of which the intervention was made. No reference to the identity of the woman is made.

The originality of the methodology described here is underlined by the fact that in literature, unlike the case of prenatal diagnosis, not many descriptions are available regarding cases of investigation for obtaining an individual profile on the product of an abortion within the third month of gestation for justice purposes.

In the case under study, the pregnancy of the woman who had suffered sexual violence was not beyond the 90th day of gestation when she lodged the complaint and there was evidence of serious risks for her mental integrity. The product of the abortion was seized by the Investigating Authority immediately after the abortion and was frozen at a temperature of -20 °C until the enactment of genetic investigations. The profile of the fetus was obtained from the chorionic villus isolated from the residuals of maternal decidua. The methodology applied was not particularly complex. Several tissue fragments were collected which, at a first macroscopic observation, and at the following histological observation, certified their derivation from the trophoblastic syncytium. Particularly noteworthy was the presence of edges of normally structured pregnancy decidua, with epithelialized chorionic villus and tissue fragments belonging to the foetus and having a regular morphologic appearance. The sample fragments were subsequently rinsed with PBS at pH 7.2 and finally washed in SDS 2% (P/V), and subjected to centrifugation in order to separate the supernatant from the material at the bottom. The operation was carried out several times.

The genetic profile of the rape victim was obtained from a blood sample taken during the abortion, while the profile of the suspect was obtained from a saliva specimen left on a coffee glass and on the spoon-like stick used to sweeten it.

The samples were then treated with a lysis solution containing protein kinase K and SDS. The extracted DNA was purified via selective adsorption on silica gel columns and subsequent elution in a TAE buffer. The DNA amount in the extracts was assessed with a REAL-TIME PCR. Individual profiles were obtained with multiplex amplification and following separation in capillary electrophoresis.

The comparison of the genetic profile obtained from chorionic villus with those of the mother and the suspect showed, with the exclusion of the allele deriving from the mother, that for any genetic area under study, the suspect always had a common allele with the genetic profile obtained from the chorionic villus.

From a statistical elaboration of the results it could be inferred that this sharing was not random.

The suggested methodology proves useful for the purpose of identifying the profile of a fetus, as well as in cases of sexual violence where the identity of the suspect is known and there are no other elements that may



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be used in order to ascertain the truth.

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