Updated easiest and accurate confirmation of early pregnancy during Autopsy

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One of the causes, for suicide in young and unmarried females is relationship without wed log which turns into pregnancy and due to failure of relationship to hide the shameful condition and guilt, female commits suicide. Sometimes during autopsy, misdiagnosis of pregnancy cause embar-rassing condition to parents and on the other side, if finding is not detected which leads escape of accused from punishment. Therefore, an accurate test of pregnancy is essential. In prevailing prac-tice, size of uterus and corpus luteum is compared with non pregnant uterus for diagnosis of preg-nancy but in early pregnancy, size of uterus and corpus luteum does’t increase considerably and findings usually missed. The proposed method is easy and confirmatory test for the same which is done by examining urine or blood serum for HCG (Human Chorionic Gonadotrophin) of deceased by HCG strip. Sometimes test may come positive if deceased aborted within 15 days.

Method

Previously during autopsy in suspected case of pregnancy urine is collected in a sterile container with the help of sterile catheter or directly from bladder during autopsy if available then urine is tested for pregnancy with the help of HCG strip or pregnancy card (which are available cheaply). Pregnancy confirmation is given by getting 2 red transverse lines in HCG strip. Higher one of them is controlled and lower one is test line. If 2 red transverse lines in HCG strip appear then pregnancy test is positive. Single line is negative test of pregnancy and if any line doesn’t appear then test is invalid. This is the test which is routinely used in obstetrics department to confirm pregnancy. It can also be confirmed by ultrasonography in which gestational sac is examined in uterus if bladder is full. It comes positive in form of small sac as early as 5 days overdue of menstrual period but now all these cumbersome job is not required when autopsy surgeon is opening the abdomen then direct-ly put hCG strip into the urine or blood vertically and apply the test. In this way no apparatus and USG is required, only thing required is hCG strip or card. In case of blood serum test require little more time that is 5-10 minutes as serum is viscous and take time for test. If pregnancy is positive then the product of conception along with uterus should be preserved for DNA test to identify the alleged father of conception, which prevent allegation of negligence on autopsy surgeon.

Precaution

This HCG stripe must be vertical and level of urine or blood should reach unto the mark. Container and catheter must be sterilized.

Theory

After fertilization, which occurs 14 days before next menstrual period and get implanted in uterus which occurs, after 5 days of fertilization that is 21st day from 1st day of cycle. During develop-ment of fetus just after implantation HCG is produced by the syncytiotrophoblast of the placenta and secreted into blood of mother as well as fetus and can be detected in the maternal serum or urine as early as 8 to 9 days following ovulation. In the early pregnancy doubling time of HCG con-centration in plasma is 1.4 to 2 days. Blood and urine value reach maximum level reaching 100 IU to 200 IU per ml between 60 to 70 days of pregnancy. The concentration falls slowly 10 to 20 IU per ml between 100 to 130 days and remains constant throughout pregnancy. HCG level in urine and blood disappear from circulation within 2 weeks following delivery. This is immunologic test of pregnancy. It is a simple rapid accurate test.

Principle of the test: The Visual hCG Test is a sandwich enzyme immunoassay (8-9) for the deter-mination of human chorionic
gonadotropin in urine or serum. The method employs two monoclonal antibodies to selectively identify hCG in urine/serum with a high degree of sensitivity. In the strip, hCG react with antibody present in strip and indicator and shows two lines as a positive test.

When urine of non-pregnant is tested then there is no HCG to neutralize. Different indicated strip is available for instance HCG coated latex particle for essay test. This hormone increases every day and reaches maximum and can be test in 20 weeks of pregnancy then it declines. Hormone secreted by syncytiotrophoblast comes in blood and urine, which can be tested by proposed method.

Observation

Routinely it is in practice to confirm pregnancy in hospitals by HCG strip. Hundreds of cases have been confirmed by this method yearly. Test is positive even after 7 days or more after collecting the urine as in the case of Smt. X1 was collected 7 days before and tested which comes positive there-fore if we get urine in decomposed body then pregnancy can be tested by proposed method. (Note-Names are decoded)

<table>
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<tr>
<th>DATE</th>
<th>Post mortem NUMBER</th>
<th>POLICE STATION</th>
<th>NAME OF DECEASED</th>
<th>HOURS</th>
<th>AGE</th>
<th>RESULT OF TEST</th>
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Other Signs of Pregnancy

Nipple and Areola become more pigmented and Montgomery’s tubercles are prominent. Thick yellow secretion (colostrum) sometimes can be expressed by squeezing breast.

False Positive

False positive test results may occur for several reasons, including errors of test application, use of drugs containing the hCG molecule, and non-pregnant production of the hCG molecule. Urine tests can be falsely positive in those that are taking the medications: chlorpromazine, phenothiazines and methadone among others. False positives may also appear on tests used past their expiration date.

A woman who has been given an hCG injection as part of infertility treatment will test positive on pregnancy tests that assay hCG, regardless of her actual pregnancy status.

However, some infertility drugs (e.g., clomid) do not contain the hCG hormone.

Some diseases of the liver, cancers, and other medical conditions may produce elevated hCG and thus cause a false positive pregnancy test. These include choriocarcinoma and other germ cell tumors, IgA deficiencies, heterophile antibodies, enterocystoplasties, gestational trophoblastic diseases (GTD), and gestational trophoblastic neoplasms.

These conditions should be ruled out before confirmation which can be tested by gestational sac in uterus with the help of ultrasound and examining organ during autopsy and past history. Positive cases by urine/blood serum HCG examination can further be confirmed under ultrasonography if bladder is full of urine.

Result

During autopsy 200 cases were examined during 2014 to 2019 in Medico legal Institute Bhopal Madhya Pradesh, India in which 30 cases were control married women in which pregnancy was known and uterus was considerably enlarge and test was positive with HCG strip. Ten cases were found positive in unmarried women and uterus was preserved along with product of conception for DNA test. Rest of the cases examined was negative with this HCG test.

Conclusion

Proposed method is easy, 100% accurate confirmatory test which can also be tested by gestational sac in ultrasound. The method proposed as above will give a scientific conclusive and quick result by which we can extract a scientific conclusive opinion immediately. Even sometimes autopsy test comes positive if deceased aborted within 15 days.

Suggestion

Proposed method should be used for confirming early pregnancy during autopsy and if found positive, then product of conception should be preserved for DNA test.

Conflict of Interest

There is no conflict of interest and this study will benefit public and judiciary. No ethical clearance is needed.

Funding

Outsource funding is not required.

Acknowledgement

I am thankful to my family members, medic legal staff and OMICS group.

Reference


19. Textbook of obstetrics Dutta hollen bruce don etc.