



# Easiest and Accurate Confirmation of Early Pregnancy during Autopsy

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## Research Article

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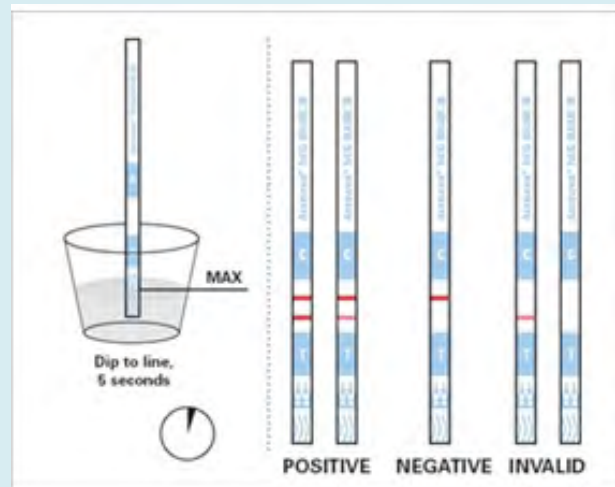
## Abstract

One of the causes for suicide in young and unmarried females is relationship without wed-log which turns into pregnancy. Due to failure of relationship or to hide the condition and guilt, they commit suicide. Sometimes during autopsy, misdiagnosis of pregnancy in absence of pregnancy causes embarrassing and controversial scenarios to families. However, on the other side, often pregnancy findings are not detected in early pregnancy which leads escape of accused from punishment. Therefore, an accurate test of pregnancy is essential. In prevailing practice, size of uterus and corpus luteum are increased during pregnancy, which leads to definitive diagnosis. Nonetheless in early pregnancy, size of uterus and corpus luteum doesn't increase considerably and findings are usually untraced. The proposed method is easy and confirmatory test for the same. It is done by examining either urine or blood serum for hCG (Human Chorionic Gonadotropin) of deceased by a hCG strip. Test result shows positive if deceased aborted pregnancy within 15 days of death.

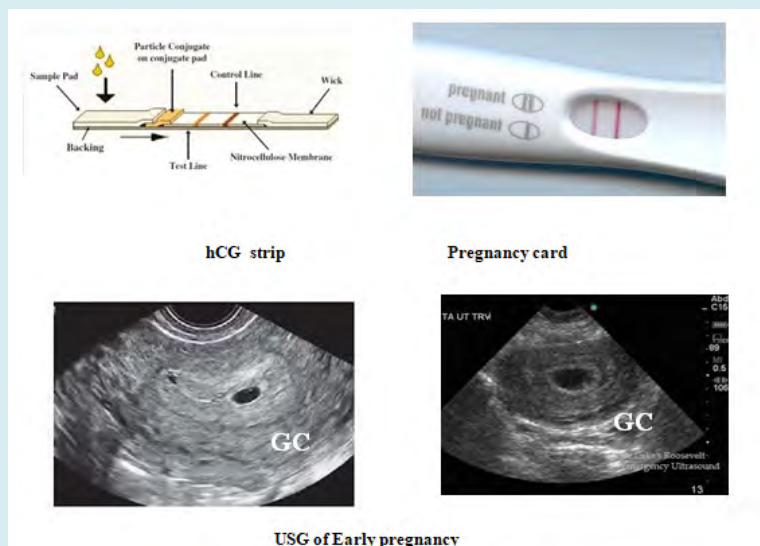
## Method

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 if available; accordingly, which is then tested for pregnancy with the help of hCG strip or pregnancy card (which are readily available). Confirmation of pregnancy is given by getting two red transverse lines in hCG in which upper line is control and lower one is test line. Single line is negative test and if any line doesn't appear, then test is considered as invalid. This test is routinely used in obstetrics department to confirm pregnancy. It can also be confirmed by ultrasound in which

gestational sac is examined in uterus if bladder is full. It becomes positive in form of small sac as early as 5 days, overdue of menstrual period [1-5]. This cumbersome job is not required when autopsy surgeon is opening the abdomen and directly placing hCG strip vertically downward in the urine or blood and apply the test. In this way, no apparatus and USG is required, only a hCG strip or card is required. In case of blood serum test, it requires more time i.e. 5-10 minutes as serum is viscous and takes time. If pregnancy is positive, accordingly, the product of conception along with uterus should be pre- served for DNA test to identify the accused person, which also save autopsy surgeon from allegation of negligence (Figures 1 & 2).



**Figure 1:** Detection of sample.



**Figure 2:** hCG Identification.

### Precaution

This hCG strip must be vertical (90 degrees) and level of urine/blood should reach up to the mark. Container and catheter must be sterilized first if used [6-10].

### Theory

Fertilization occurs 14 days prior to next menstrual cycle and zygote gets implanted in uterus which occurs after 5 days of fertilization i.e 21<sup>st</sup> day from 1<sup>st</sup> day of last menstrual cycle.

hCG is produced by the syncytiotrophoblast of the placenta hCG in blood and urine of mother which can be detected in the maternal serum or urine as early as 8 to 9 days following implantation. Time taken by hCG to get doubled is 48 to 72 hours. Maximum level of hCG reaches up to 100 IU to 200 IU per ml between 60 to 70 days. The concentration decreases to 10-20 IU per ml between 100 to 130 days and remains constant throughout pregnancy [10-12]. hCG level disappear from circulation within 2 weeks following delivery or abortion. 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 for the determination 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 as 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 strips are available for instance hCG coated latex particle for essay test. Hormone secreted by syncytiotrophoblast comes in blood

and urine, which can be tested by pro- posed 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. For instance in the case of Smt. X1 was collected 7 days before and tested which comes posi- tive. Hence, if we get urine or blood in decomposed body then pregnancy can be tested by proposed method. (Note-Names are decoded) (Table 1).

Date	Post Mortem Number	Police Station	Name of Deceased	Hours	Age	Result of Test
22-06-2014	1264/14	X1	Y1	36 HRS	21 YRS	UPT Negative
12-08-2014	1636/14	X2	Y2	24 hrs	22 YRS	UPT Negative
22-06-2014	1270/14	X3	Y3	24 HRS	25 yrs	UPT Positive
22-06-2014	1267/14	X4	Y4	24 hrs	16 YRS	UPT Positive
22-06-2014	1271/14	X5	Y5	24 hrs	22 yrs	UPT Negative
26-08-2015	1738/15	X 6	Y6	24 HRS	26 YRS	UPT Positive
05-09-2015	1798/15	X7	Y7	24 hrs	20 YRS	UPT Negative
16-09-2016	1872/16	X8	Y8	24 hrs	25 yrs	UPT Positive
16-09-2016	1876/16	X9	Y 9	24 hrs	16 yrs	UPT Negative
22-09-2017	1910/17	X10	Y10	24 hrs	17 YRS	UPT Negative
22-09-2017	1913/17	X11	Y11	24 HRS	26 YRS	UPT Negative
22-09-2018	1915/18	X12	Y12	24 HRS	10 YRS	UPT Negative
23-09-2018	1924/18	X13	Y13	24 HRS	25 YRS	UPT Positive
26-08-2019	1738/19	X 14	Y14	24 HRS	26 YRS	UPT Positive
05-09-2019	1798/19	X15	Y15	24 hrs	20 YRS	UPT Negative

**Table 1:** Details of Deceased.

## 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 nipples.

## 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 like: 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, regardless of her actual pregnancy status [13].

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 can cause a false positive pregnancy test. These include choriocarcinoma and other germ cell tumors, IgA deficiencies, heterophile antibodies, enterocystoplasties, gestational trophoblastic dis- eases (GTD), and gestational trophoblastic neoplasms. These conditions should be ruled out before confirmation which can be tested by examining organ during autopsy and past history by relative. Positive cases by urine/blood serum hCG examination can further be confirmed under ultrasonography if bladder is full of urine [14].

## Results

During autopsy 152 cases were examined between 2014 to 2019 in Medico legal Institute Bhopal Madhya Pradesh, India. 50 cases were of married women in which pregnancy was known. Uterus was considerably enlarged 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 [15-17].

## 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 [18,19].

## Suggestion

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

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## Acknowledgement

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