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# EVALUATION OF SOME CAUSES OF INDUCED ABORTION AND THE RISK OF TUBAL INFERTILITY IN WOMEN IN BAGHDAD

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## ABSTRACT

Objective To explore the association between induced abortion and tubal infertility Induced abortion was not found to be associated with tubal infertility in the analysis including either the infertile controls or the pregnant controls, but other risk factors were found, such as the history of the acute pelvic inflammatory disease (PID), lower abdominal surgeries, dysmenorrhea and pregnancy. It is contended that facing an increasing trend of infertile cases with tubal occlusion in China, it is emphasized that special attention should be paid to the long-term impact of reproductive tract infection, especially, asymptomatic ones, rather than induced abortion.

**KEYWORDS:** Induced Abortion, Tubal Infertility.

## INTRODUCTION

In the past over 10 years, the number of women who have induced abortion (vacuum aspiration abortion) because of unwanted pregnancies has been increased along with changes in people's norms and values toward sex and birth in China.[1] At the same time, an increase in infertile cases due to tubal occlusion has been observed[2] Meanwhile, it was found that a lot of infertile women with tubal occlusion have had induced abortion, so the two factors appeared to be naturally related and it was wondered whether there was any association between induced abortion and tubal infertility. Some clinical studies in China seemed to support this association.[3] However, there were studies from other countries, which showed no association between the two factors.[4] Both tubal infertility and induced abortion are closely related to human reproductive health. Since inconsistency was apparent in the past studies, this proposed study was to explore the relationship between induced abortion performed in iraq and tubal infertility.

## BACKGROUND

It is common for women to have abortions with the hope to conceive later on in life when their situation is more stable. Still, the procedure is an invasive one and it is understandable that that fact may create worry about what the effects might be. If you have had one or more abortions in your life and are now concerned about experiencing infertility, it is natural to attribute any complications that you experience to those choices long ago.

However, there is currently no evidence that surgical or medical abortions cause infertility. Especially if the procedure was done by a professional in a safe setting, then it should not cause any harm to the ability to conceive when the time is right. If the procedure does involve some complications however, there is a possibility for a last effecting on reproductive.[5]

### There are two types of abortions that one can have

- Medical abortions require the consumption of medication in order to carry out the abortion. This should have absolutely no affect on a person's reproductive organs.
- Surgical abortions include some type of surgical instrument that is inserted into the cervix during the procedure.
- In either case, a woman should monitor her temperature and follow up with her practitioner after the abortion to ensure that there are no signs of infection.[6]

### Abortion & Infertility

Any invasive medical procedure holds the risk of causing harm to a person's body. The most worrisome issue that can develop after a procedure such as this would be the development of postoperative infection. In other cases, if a woman has more than one abortion it is possible for scar tissue to develop on top of the cervix or within the uterus.[7]

Multiple abortions could also weaken the cervix which would make it difficult to sustain a pregnancy. Lastly, abortions tend to cause a great deal of emotional stress. If a woman has been greatly affected emotionally, this can cause the body to reject a pregnancy.[8]

### Complications That May Occur

Possible contributors to infertility from abortion include.

Fetal tissue damage: A first trimester abortion, also known as incomplete abortion, may leave some fetal tissue in the uterus. This tissue can lead to an infection that could cause permanent damage to the fetal organs.[9]

Pelvic Inflammatory Disease (PID): All women are at risk of PID following an abortion. This is when the uterus, fallopian tubes, and ovaries become inflamed. If this occurs, it does create a risk for damage to the reproductive organs.[10]

2nd or 3rd Trimester Abortion: 90% of abortions are done within the 1st trimester of pregnancy. In the case of a procedure being done during the 2nd or 3rd trimester, a material called Laminaria must be used in order to dilate the cervix. It is possible that this material could weaken the cervix and result in infertility.[11]

**Signs of Infertility in Women**

If the women worried that an abortion has resulted in infertility, there are some signs that may indicate this as a possibility. Some signs of infertility in women are.

- irregular periods of painful or heavy periods of hormonal fluctuations (skin issues, lowered sex drive, facial hair, thinning hair, weight gain).
- pain during intercourse.[12]

**Induced Abortion and the Risk of Tubal Infertility**

In the past over 10 years, the number of women who have induced abortion(vacuum aspiration abortion) because of unwanted pregnancies has been increased along with changes in people's norms and values toward sex and birth.[13] At the same time, an increase in infertile cases due to tubal occlusion has been observed.[14] Meanwhile, it was found that a lot of infertile women with tubal occlusion have had an induced abortion, so the two factors**.**

appeared to be naturally related and it was wondered whether there was any association between induced abortion and tubal infertility. Some clinical studies in China seemed to support this association.[15] However, there were studies from other countries, which showed no association between the two factors.[16] Both tubal infertility and induced abortion are closely related to human reproductive health.

**Methods of study**

The study was conducted in the hospital of the alkhark hospital in Iraq. Health professionals who had routine contact with patients were trained as investigators on how to fill the questionnaire and instructions. Infertile subjects (cases and infertile controls) were selected from infertile women who were scheduled for diagnostic HSG. From the same centre, pregnant controls were recruited during the corresponding period. All of the subjects were

consecutively recruited but a few (less than 5%) of them, who met the eligibility criteria, refused to participate. Data were collected through face-to-face interviews on the questionnaires, covering the subjects' demographic details and histories of gynecology and obstetrics, surgery and contraception.

**Statistical analysis**

Data were analyzed using STATA 8.0 software. The adjusted odds ratio was calculated as a measure of the association between induced abortion and tubal infertility. Stepwise multiple logistic regression analysis and chi-square test were used. $P<0.05$ was considered to be statistically significant.

**Subjects' demographic status**

Altogether 100 questionnaires were collected, were valid for analysis. The average age of all of the subjects was 27.3 years. The duration of infertility was 1-15 years at an average of 4.17 years. The cases and the infertile controls were similar in terms of the level of education, age, residential area, occupational status and duration of infertility.

**RESULTS**

The result showed that induced abortion was not associated with tubal infertility in the analysis including either the infertile controls or the pregnant controls. Lower abdominal surgeries were found to be associated with an increased risk of tubal infertility in both of the analysis. In the analysis including the infertile controls, the histories of acute pelvic inflammatory disease (PID), dysmenorrhea and pregnancy increased the risk of tubal infertility.

Other pregnancy outcomes such as medical abortion, secondary trimester abortion, birth delivery, spontaneous abortion and use of contraceptives were not associated with tubal infertility ($P>0.05$). In the analysis, the women who had the histories of birth delivery, spontaneous abortion and use of contraceptives were more numerous among the pregnant controls. Medical abortion and secondary trimester abortion were similar between case group and pregnant control group ($P>0.05$).

**Table 1.**

| | Case group | Infertile control | Pregnant control |
|---|---|---|---|
| **Abdominal surgeries** | 38/224(17.0) | 20/251(8.0) | 25/218(11.5) |
| **Dysmenorrhea** | 17/234(7.6) | 12/251(4.8) | 18/225(8.0) |
| **Acute PID** | 12/222(5.0) | 4/234(1.6) | 12/215(5.1) |
| **Pregnancy** | 127/229(55.5) | 100/251(39.8) | 167/226(73.9) |
| **birth delivery** | 19/229(8.3) | 14/251(5.6 | 78/226(34.5) |
| **Spontaneous abortion** | 10/229(4.4) | 15/251(6.0) | 29/226(12.8) |
| **Contraception** | 61/229(26.6) | 72/251(28.7) | 149/226(65.9) |
| **Induced abortionc** | 82/229(35.8) | 65/251(25.9) | 100/226(44.2 |

All of these reports, some questions of study design were found and need to be considered. In some of the studies, the women with tubal infertility after induced abortion were chosen as cases while the primarily infertile women (no induced abortion history) were chosen as controls.[17]

This selection of subjects may result in a bias of the exposed/not-exposed ratio in the cases and controls. Other studies did not set up control groups.[18] One study showed a contradiction between the result and conclusion because the result did not find a significant association while the conclusion suggested that induced abortion was a risk.[19] Although a lot of studies were conducted in China in recent years, the results of the studies may be considered cautiously because of the limitation of methodology. In contrast, most of the studies abroad were conducted using strict epidemiologic methods against uncontrolled clinical series. Similarly, in the present study, some important issues such as validity were considered in study design. Past research on this topic seldom used infertile women and pregnant women as controls simultaneously. We used two controls for several reasons. First, we included an infertile control to ensure that the cases came from the same population as the controls. Second, this approach minimized recall bias since both of them were infertility. We also included a pregnant control in order to address the association between the same interesting variable (induced abortion) and ability to conceive. In addition, it could avoid the problems of making comparisons with pregnant women who tend to be different on so many variables which may be unrelated to infertility, but which may be related to the exposures of interest.

The result that induced abortion was not shown to be associated with tubal infertility both in infertile controls and pregnancy controls. Thus, it may show evidence against bias because the results presented at a similar level in both groups. However, the result did not support

other studies in China. It should be paid attention since the different results were obtained in the same area. Many studies confirm that reproductive tract infections including sexually transmitted diseases are a major reason for tubal infertility.[20]

Some infections, such as chlamydia trachomatis, related to tubal occlusion, are usually asymptomatic.[21] or manifest with sub-clinical symptoms, which are not readily noticed or discovered by the infected women. Thus, results in a delay in diagnosis and treatment, and the tubes are usually damaged when a failure occurs in a planned pregnancy. However, the infertile women who were tubal occlusion and had previously experienced induced abortion could often recall their history of induced abortion but could not recall or didn't realize that they had a history of infection. Those women automatically related tubal infertility with prior induced abortion, but ignored infection. As a result, there may be an underestimate of the role of infection and an overestimate of the effects of induced abortion. Consequently, it might increase the worry about induced abortion dramatically.

The findings that histories of acute PID, lower abdominal surgeries were risk factors for tubal infertility were also observed in other studies.[22] The lower abdominal surgeries 224 collected in the study included vermiform appendix infection, peritonitis, oophoritic cysts, ectopic pregnancy and chocolate cysts. They may have an influence on the tubes because of infection or surgical trauma. It is implied that the association of two factors may be stranger because of the similarly in both groups. The experience of dysmenorrhea was possibly related to some gynecological diseases such as endometriosis, as well as its relation to chronic PID. Endometriosis itself is also one of the causes of tubal infertility.[23]

With regard to pregnancy as a risk factor for tubal infertility, from the clinical perspective, it is the terminative procedure of pregnancy but not the pregnancy itself that may have more influence on the tubes, because whether it is natural or artificial termination, it may all possibly increase some probability of tubal pathologies, such as reproductive tract infection. Although the study did not show the risk of induced abortion, it is necessary to conduct further study.

Besides, the comparative analysis in the case and infertile control groups showed that all the tubal pregnant cases occurred in the case group, which implied the relationship between tubal pathology and tubal pregnancy. In the comparative analysis including the case and pregnant control groups, it was shown that the histories of birth delivery and spontaneous abortion

appeared more frequent among the pregnant controls. It does not mean that they are protective factors on fertility while this is because their fertility is different between these two groups.

The pregnant controls that were able to conceive had more birth delivery or spontaneous abortion should be easy to be understood. For the same reason, because of normal fertility, the subjects in the pregnant controls were more concerned about unwanted pregnancy than those in the case group, and they had more experience of contraception. Our finding that induced abortion did not increase the risk of tubal infertility contradicts most previous study results in China that may have aroused concern about induced abortion affecting future fertility. It is contended that facing an increasing trend of infertile cases with tubal occlusion in Iraq, it is emphasized that special attention should be paid to the impact of reproductive tract infection, especially, asymptomatic ones, rather than induced abortion.

In our study, univariate analysis showed that sexual activity at an early age, a greater number of 480 Bahamondes et al. Risk factors.[24] for tubal infertility Multiple Logistic Regression Model Including All Women Variables Coefficient, Pelvic surgery, Alcohol consumption, Barrier contraceptives, OCs lifetime sexual partners, practice of anal sex, history of STD(s) and of abortion, and smoking and alcohol consumption were associated with tubal infertility. Some of these variables are clearly related to reproductive tract infection; however, it is difficult to link smoking and alcohol use directly to reproductive tract infection.

Sexual activity at an early age and a greater number of lifetime sexual partners are probably correlated. Consequently, women who initiate sexual activity at an early age probably will have more sexual partners and, subsequently, an increased STD and pelvic inflammatory disease (PID) risk.[25] The practice of anal sex could also increase this risk of infection. History of STD was found to be a lowrisk variable. It was not a higher risk probably because subjects were not aware of and did not refer to asymptomatic STD episodes.[26]

Our study showed the association between illegal abortion and tubal obstruction. In countries in which abortion is legal and performed by physicians, the procedure does not contribute significantly to an increase in tubal infertility risk.[27]

Barrier contraceptive methods have been shown to protect against STDs and to reduce PID risk.[28]

This effect is evident in condom users, especially when condoms are lubricated with nonoxynol-9, which has a germicide effect.[29] Our results confirmed this protective effect. Oral contraceptives and MP A also were found to be protective, probably because of their progestinic component. This hormone thickens cervical mucus, blocking the ascent of the etiologic agents of PID to the upper genital tract.[30] In addition, hormonal contraceptives.

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