# Comparison of Condition Specific Indicators among Illegal Induced Abortion: Septic and Non-Septic Abortion in Songkla Center Hospital

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***Objective:*** *Determine the clinical indications of illegal induced abortion, comparison between septic and non-septic abortion.*
***Material and Method:*** *The present retrospective descriptive study was conducted among pregnant women who were admitted in the hospital with the illegal induced abortion. The demographic data, gestational age, the method used, and personnel performing were gathered, as well as symptomatology, basic laboratory, condition progression, and medical and surgical intervention.*
***Results:*** *There were 92 patients with illegal induced abortion between March 2009 and December 2010. The three main induced methods for termination of pregnancy was vaginal suppository, likely to be misoprostol-a synthetic prostaglandin $E_1$ analog (43.5%), oral Thai herbal medicine (19.6%) and combined medication (16.3%), respectively. Of septic/non-septic abortion, the first visit body temperature of 38.0 degrees Celsius or more (74.1/12.3%), heart rate of 100 per minutes or more (74.1/12.3%), fever index 3 degree-hours or more in the first 24 hours (81.5/12.3%) and fever index 5 degree-hours or more in the first 24 hours (59.3/1.5%), were statistically significant (all p-values of < 0.001). Overall, the most common type of termination of induced abortion was incomplete abortion 68 in 92 cases (73.9%).*
***Conclusion:*** *The first visit body temperature of 38.0 degrees C or more, heart rate of 100 per minutes or more and fever index of 3 and 5 degree-hours, are clinically helpful in the early diagnosis and treatment of septic abortion.*

***Keywords:*** *Condition specific indicator, Induced abortion, Septic abortion, Non-septic abortion*

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A retrospective review of Ramathibodi Hospital between 1969 and 1982 was done. There were maternal mortality of 0.4/1,000 among 72,872 live births and 26 maternal deaths. The septic abortion accounted for 10 in 26 cases[1].

At present, maternal mortality in Thailand has been considerably reduced over the past several decades, whereas wide disparities remain between urban and rural areas with regard to maternal and child health care. In contrast, the report of a provincial hospital, Chon Buri Hospital, the maternal mortality was 51.1/100,000 live births, 27 deaths out of 52,805 births in the 10-year period from 1982 to 1991. The abortion related complications were one of the top causes of death[2].

Induced abortion is illegal in Thailand unless the woman's health is at risk or pregnancy is due to rape. According to the abortion law in Thailand it is governed by the provisions of Sections 301 to 305 of the Thai Penal Code of 13 November 1956. Under the Code, the performance of abortions is generally prohibited. A woman who causes her own abortion or allows any other person to procure her abortion is subject to up to three years' imprisonment and/or payment of a fine not exceeding 6,000 baht[3]. However, illegal abortion services outside Bangkok and outside hospitals or clinics, are provided by non-physician practitioners[4].

Among 787 government hospitals, an abortion review of 45,990 case records in 1999 reported the magnitude and profile of abortion. The abortion was classified as 71.5% of spontaneous abortion and

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25.5% of induced abortion. The estimated induced abortion ratio was 19.5 per 1,000 live births. Almost half the induced abortions were in young women under 25 years of age, many of whom had little or no access to contraception. Socio-economic reasons accounted for 60.2% of abortions. Serious complications were observed in almost a third of cases, especially following abortions performed by non-health personnel[5]. The aim of the present study was to determine the clinical indications of illegal induced abortion, comparison between septic and non-septic abortion.

## Material and Method

By the ethical approval, the retrospective descriptive study was conducted in the Department of Obstetrics and Gynecology, Songkla Center Hospital, among pregnant women who were admitted in the hospital with an illegal induced abortion.

A detailed client history was taken, including gestational age at the time of the diagnosis, whereas the method used and personnel performing illegal induced abortion, were accounted among unwanted pregnancy. The medical information was gathered: such as symptomatology, basic laboratory, condition progression, medical and surgical intervention.

Septic abortion is defined as an infection of the reproductive tract upper infection and its appendages following any abortion especially illegally performed induced abortions. Modified Rana 2004[6] was used as temperature criteria and characterized by an elevation of body temperature to at least 38 degrees Celsius or 100.4 degrees Fahrenheit, on two occasions associated with the abortion.

The fever index of the first 24 hours of admission was calculated in term of degree-hours, which was the area under the curve of body temperature value of higher than 37.3 degrees C on the fever chart, modified Ledger 1997[7]. The leukocytosis in the adult is indicated when there are more than 10,500 white blood cells per cubic milliliter.

Demographic data were demonstrated as percentages, median, mean, range, and standard deviation. Condition specific indicators were analyzed by as cross-tabulation, Mid-P exact test and p-value (1-tail) by Open Source Epidemiologic Statistics for Public Health (OpenEpi, version 2.3.1). Statistical significance was set at $p < 0.05$.

## Results

There were 92 patients with illegal induced abortion between March 2009 and December 2010. The patient characteristics are demonstrated in Table 1. About half of the subjects (51.1%) were unwanted pregnancy of the age of 20 to 30 years old, nearly one-third were unwanted pregnancy in teenagers of the age of 19 years or less. The majority of subjects were single (89.1%), gestational age of 12 weeks or less (76.2%). The three main induced methods for termination of pregnancy was vaginal suppository, likely to be misoprostol-a synthetic prostaglandin $E_1$ analog (43.5%), oral Thai herbal medicine (19.6%) and combined medication (16.3%), respectively. The remainder was instrumental manipulation, oral medication, combined instrument and medication, and injectable drug. For personnel performing abortion, self-administration was the majority of 71 in 92 cases (77.2%) and the paramedical/nonmedical person was 21 in 92 cases (22.8%). The presenting symptoms of

**Table 1.** Characteristics of patients with illegal induced abortion

| n = 92 | No. (%) |
|---|---|
| Age (year) | |
| Less than 15 | 2 (2.2) |
| 15 to 19 | 30 (32.6) |
| 20 to 30 | 47 (51.1) |
| More than 30 | 13 (14.1) |
| Marital status | |
| Single | 82 (89.1) |
| Gestational age (week) | |
| 12 or less | 64/84 (76.2) |
| 14 to 20 | 15/84 (17.9) |
| 22 to 28 | 5/84 (5.9) |
| Induced method | |
| Vaginal suppository | 40 (43.5) |
| Oral Thai herbal medicine | 18 (19.6) |
| Combined medication | 15 (16.3) |
| Instrumental manipulation | 12 (13.0) |
| Oral medication | 4 (4.3) |
| Combined Instrument and medication | 2 (2.2) |
| Injectable drug | 1 (1.1) |
| Personnel performing the abortion | |
| Self administration | 71 (77.2) |
| Paramedical/nonmedical person | 21 (22.8) |
| Symptom | |
| Vaginal bleeding | 92 (100.0) |
| Pelvic pain/discomfort | 90 (97.8) |
| Type of termination | |
| Incomplete abortion | 68 (73.9) |
| Complete abortion | 18 (19.6) |
| Dead fetus in utero | 5 (5.4) |
| Threatened abortion | 1 (1.1) |

**Table 2.** Comparison of condition specific indicators between septic and non-septic abortion

| Item | Septic abortion (n = 27), No. (%) | Non-septic abortion (n = 65), No. (%) | p-value |
|---|---|---|---|
| First visit body temperature of 38.0 degrees C or more | 20 (74.1) | 8 (12.3) | <0.001 |
| Heart rate of 100 per minutes or more | 20 (74.1) | 8 (12.3) | <0.001 |
| Leukocytosis more than 10,500 cells/mm$^3$ | 21 (77.8) | 38 in 52 (73.1) | 0.334 |
| Leukocytosis 15,000 cells/mm$^3$ or more | 13 (48.1) | 15 in 52 (28.8) | 0.050 |
| Fever index 3 degree-hours or more in the first 24 hours | 22 (81.5) | 8 (12.3) | <0.001 |
| Fever index 5 degree-hours or more in the first 24 hours | 16 (59.3) | 1 (1.5) | <0.001 |
| Septic shock | 2 (7.4) | - | NA |

induced abortion were vaginal bleeding of all cases, followed by pelvic pain/discomfort of 90 in 92 cases (97.8%).

The condition specific indicators between septic and non-septic abortion were analyzed, as demonstrated in Table 2. Of septic/non-septic abortion, the first visit body temperature of 38.0 degrees C or more (74.1/12.3%), heart rate of 100 per minutes or more (74.1/12.3%), fever index 3 degree-hours or more in the first 24 hours (81.5/12.3%) and fever index 5 degree-hours or more in the first 24 hours (59.3/1.5%), were statistically significant (all p-values of < 0.001). While, the leukocytosis of more than 10,500 cell/mm$^3$, had no statistical significance (p-value of 0.334), as well as leukocytosis of 15,000 cell/mm$^3$ or more (p-value of 0.050).

Overall, the most common type of termination of induced abortion was incomplete abortion 68 in 92 cases (73.9%), followed by complete abortion (19.6%), dead fetus in utero (5.4%) and threatened abortion (1.1%). Distributed by type of abortion, the induced septic/non-septic abortion termination was incomplete abortion 21 in 27 (77.8%)/47 in 65 (72.3%), complete abortion 4 in 27 (14.8%)/14 in 65 (21.5%), dead fetus in utero 2 in 27 (7.4%)/3 in 65 (4.6%) and threatened abortion 0 in 27 (0%)/1 in 65 (1.5%). No mortality was reported. Of septic/non-septic abortion, the morbidity included septic shock 2/0 cases (7.4/0%), anemia with blood transfusion 2/1 cases (7.4/1.5%) and cervical tear 1/0 case (3.7/0%).

## Discussion

By national survey of 787 hospitals in Thailand, the unwanted pregnancy with induced abortion was accounted in adolescents, age 19 years old or less, was 20.7% in 1999[5] and it was at least 14% increasing, compared with the present study of 34.8%.

The self-administration of vaginal drug had the high proportion of 71 in 92 cases (77.2%) and this agreed with the recent study[8]. Two-thirds of the subjects found that it was easy to self-administer vaginal misoprostol in the hospital, with 100% successful rate for termination of pregnancy.

The most common type of termination of induced abortion was incomplete abortion 68 in 92 cases (73.9%), similar to the gestation at the time of abortion of 12 weeks or less was 64 in 84 cases (76.2%). That makes the uterine evacuation and curettage the most common procedure for complication of abortion, retained conceptive product[9].

The diagnosis of septic abortion should be considered when women of reproductive age present to the emergency unit with vaginal bleeding, pelvic pain/discomfort and fever[10]. The present study demonstrated that vaginal bleeding was the most common symptom, followed by pelvic pain/discomfort. Although a fever technically is any body temperature above the normal of 37 degrees C, however, the present study was considered to have a significant fever until the body temperature was 38 degrees C or more. The body temperature of 38.0 degrees C or more got along with heart rate of 100 per minutes or more and both were highly statistically significant toward septic condition, as well as fever index of 3 and 5 degree-hours or more in the first 24 hours. Therefore, body temperature in aborting women is the first objective sign to be concerned for impending septic abortion and of course two occasions of such a temperature is confirmed for septic abortion. Besides, the septic condition increases the risk of morbidity and mortality who do not directly evacuate the content of the uterus[11], nor prescribe the prompt effective antibiotics[10].

Condition specific indicators of the present study are a part of the clinical indicators, which are a

form of performance measurement, a method for assessing the quality of care by examining the incidence of specific events or incidents[12].

## Conclusion

The first visit body temperature of 38.0 degrees C or more, heart rate of 100 per minutes or more and fever index of 3 and 5 degree-hours in the first 24 hours, are clinically helpful in the early diagnosis and treatment of septic abortion.


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## Potential conflicts of interest

None.

## References


1. Phuapradit W, Sirivongs B, Chaturachinda K. Maternal mortality in Ramathibodi Hospital: a 14-year review. J Med Assoc Thai 1985; 68: 654-8.
2. Pinchun P, Chullapram T. A 10-year review of maternal mortality in Chon Buri Hospital, Thailand. J Med Assoc Thai 1993; 76: 308-13.
3. Criminal law, Thailand. Title X, Chapter 3, Sections 301-305. Criminal Code, B.E. 2499 (1956).
4. Singnomklao TN. Abortion in Thailand and Sweden: health services and short-term consequences. Ciba Found Symp 1985; 115: 54-66.
5. Warakamin S, Boonthai N, Tangcharoensathien V. Induced abortion in Thailand: current situation in public hospitals and legal perspectives. Reprod Health Matters 2004; 12: 147-56.
6. Rana A, Pradhan N, Gurung G, Singh M. Induced septic abortion: a major factor in maternal mortality and morbidity. J Obstet Gynaecol Res 2004; 30: 3-8.
7. Ledger WJ, Kriewall TJ. The fever index: a quantitative indirect measure of hospital-acquired infections in obstetrics and gynecology. Am J Obstet Gynecol 1973; 115: 514-20.
8. Kiran U, Amin P, Penketh RJ. Self-administration of vaginal misoprostol after mifepristone for termination of pregnancy: patient acceptability. J Obstet Gynaecol 2006; 26: 679-81.
9. Ladipo OA. Preventing and managing complications of induced abortion in Third World countries. Suppl Int J Gynecol Obstet 1989; 3: 21-8.
10. Stubblefield PG, Grimes DA. Septic abortion. N Engl J Med 1994; 331: 310-4.
11. Grimes DA, Cates W Jr, Selik RM. Fatal septic abortion in the United States, 1975-1977. Obstet Gynecol 1981; 57: 739-44.
12. Thomson R, Lally J. Clinical indicators: do we know what we're doing? Qual Health Care 1998; 7: 122.

## *เปรียบเทียบตัวบ่งชี้เงื่อนไขจำเพาะในการแท้งเหนี่ยวนำผิดกฎหมาย: การแท้งติดเชื้อและไม่ติดเชื้อในโรงพยาบาลศูนย์สงขลา*

***ทัดพงศ์ พรหมวิจิตร, วีระพล จันทร์ดียิ่ง***

***วัตถุประสงค์:*** *การศึกษานี้มุ่งหมายกำหนดตัวบ่งชี้ทางคลินิกของการแท้งเหนี่ยวนำผิดกฎหมายเปรียบเทียบระหว่างการแท้งติดเชื้อและไม่ติดเชื้อ*

***วัสดุและวิธีการ:*** *การศึกษาพรรณนาย้อนหลังกระทำในหญิงตั้งครรภ์รับไว้ในโรงพยาบาลด้วยการแท้งเหนี่ยวนำผิดกฎหมาย เก็บข้อมูลประชากร อายุครรภ์ วิธีการเหนี่ยวนำการแท้ง และบุคคลดำเนินการรวมถึงอาการวิทยา การตรวจทางห้องปฏิบัติการพื้นฐาน และการเวชปฏิบัติด้านอายุรศาสตร์กับศัลยศาสตร์*

***ผลการศึกษา:*** *มีผู้ป่วยแท้งเหนี่ยวนำผิดกฎหมายระหว่างเดือนมีนาคม พ.ศ. 2552 และ ธันวาคม พ.ศ. 2553 วิธีการเหนี่ยวนำหลักสามอย่างสำหรับการสิ้นสุดการตั้งครรภ์ได้แก่ ยาสอดช่องคลอด (มักเป็น misoprostol พรอสตาเกลนดิน อี 1 สังเคราะห์) ร้อยละ 43.5 ยาสมุนไพรไทยรับประทาน ร้อยละ 19.6 และ การใช้ยารวมกันสองชนิด ร้อยละ 16.3 ตามลำดับ แท้งติดเชื้อ/ไม่ติดเชื้อมีอุณหภูมิกายแรกรับ 38.0 องศาเซลเซียสหรือมากกว่า ร้อยละ 74.1/12.3 อัตราการเต้นหัวใจ 100 ครั้งต่อนาทีหรือมากกว่า ร้อยละ 74.1/12.3 ดัชนีไข้ 3 องศา-ชั่วโมงหรือมากกว่าใน 24 ชั่วโมงแรก ร้อยละ 81.5/12.3 และดัชนีไข้ 5 องศา-ชั่วโมงหรือมากกว่าใน 24 ชั่วโมงแรก ร้อยละ 59.3/1.5 มีนัยสำคัญทางสถิติ (ทุก p-value น้อยกว่า 0.001) โดยรวมชนิดการสิ้นสุดการแท้งเหนี่ยวนำที่พบบ่อยที่สุดคือการแท้งค้าง 68 ใน 92 ราย (ร้อยละ 73.9)*

***สรุป:*** *อุณหภูมิกายแรกรับ 38.0 องศา เซลเซียสหรือมากกว่าอัตราการเต้นหัวใจ 100 ครั้งต่อนาทีหรือมากกว่าดัชนีไข้ 3 และ 5 องศา-ชั่วโมงหรือมากกว่าใน 24 ชั่วโมงแรก มีประโยชน์ทางคลินิกในการวินิจฉัยและรักษาการแท้งติดเชื้อแต่เริ่มแรก*