

# INFLUENCE OF TAMOXIFEN ON THE BIOLOGICAL MARKERS OF FERTILITY: A CASE SERIES OF SYMPTOTHERMAL CHARTING

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## THE TAMOXIFEN:

• It is a selective estrogen receptor modulator for treatment of invasive breast cancer (+ER) after surgery, radiation/chemotherapy and for preventing invasive breast cancer in women at high risk

• Effects:

- Breast tissue: anti-estrogenic
- Uterus and ovary: estrogenic properties
  - Endometrial hyperplasia, polyps
  - Ovarian cysts
- Cervix: anti-estrogenic?



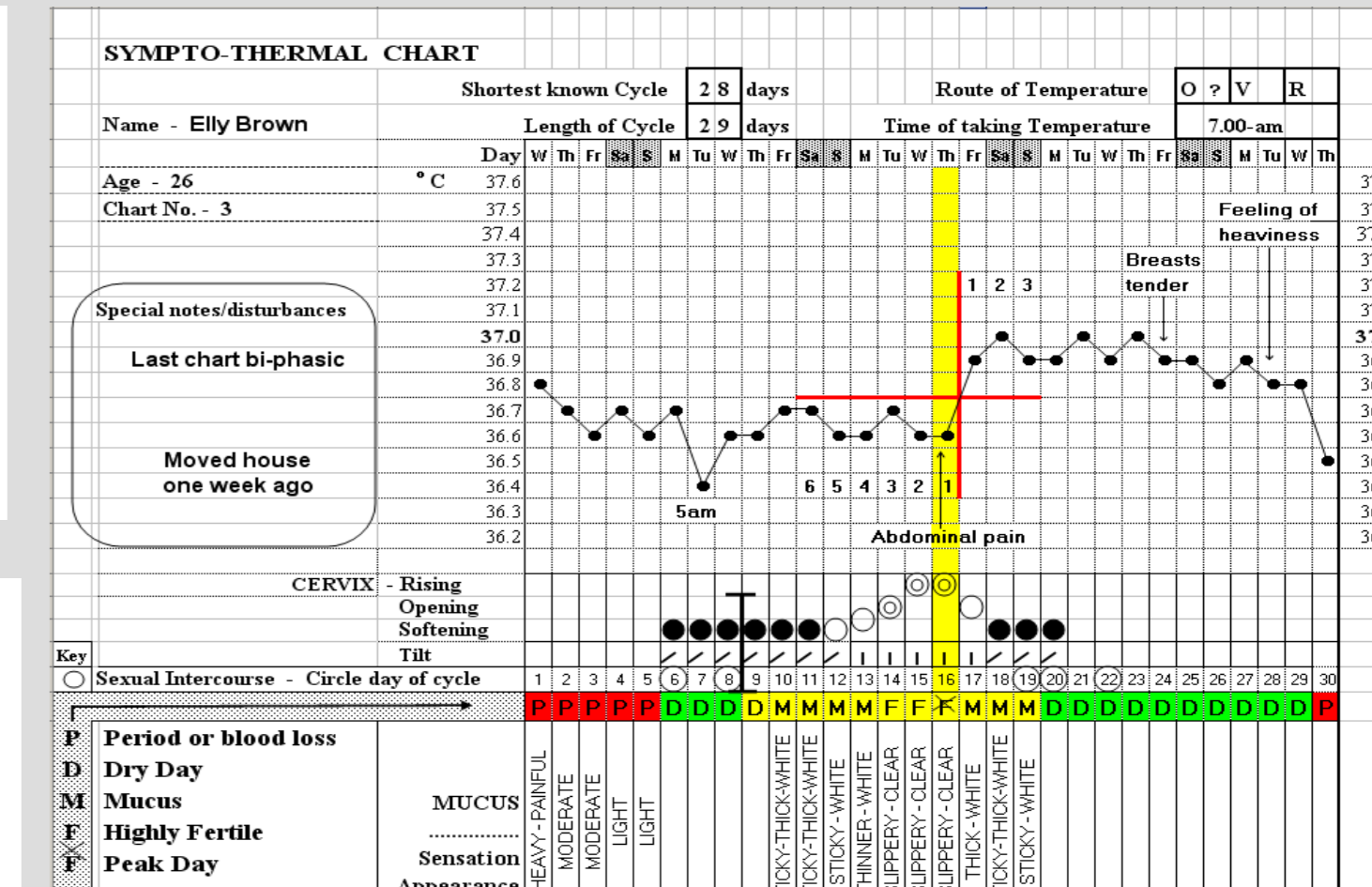
• Pregnancy is not recommended while taking Tamoxifen (TMX)

- Embryo may be damaged
- Breast cancer progression, due to pregnancy hormones



➢ **Is it Natural Family Planning an option for women taking TMX?**

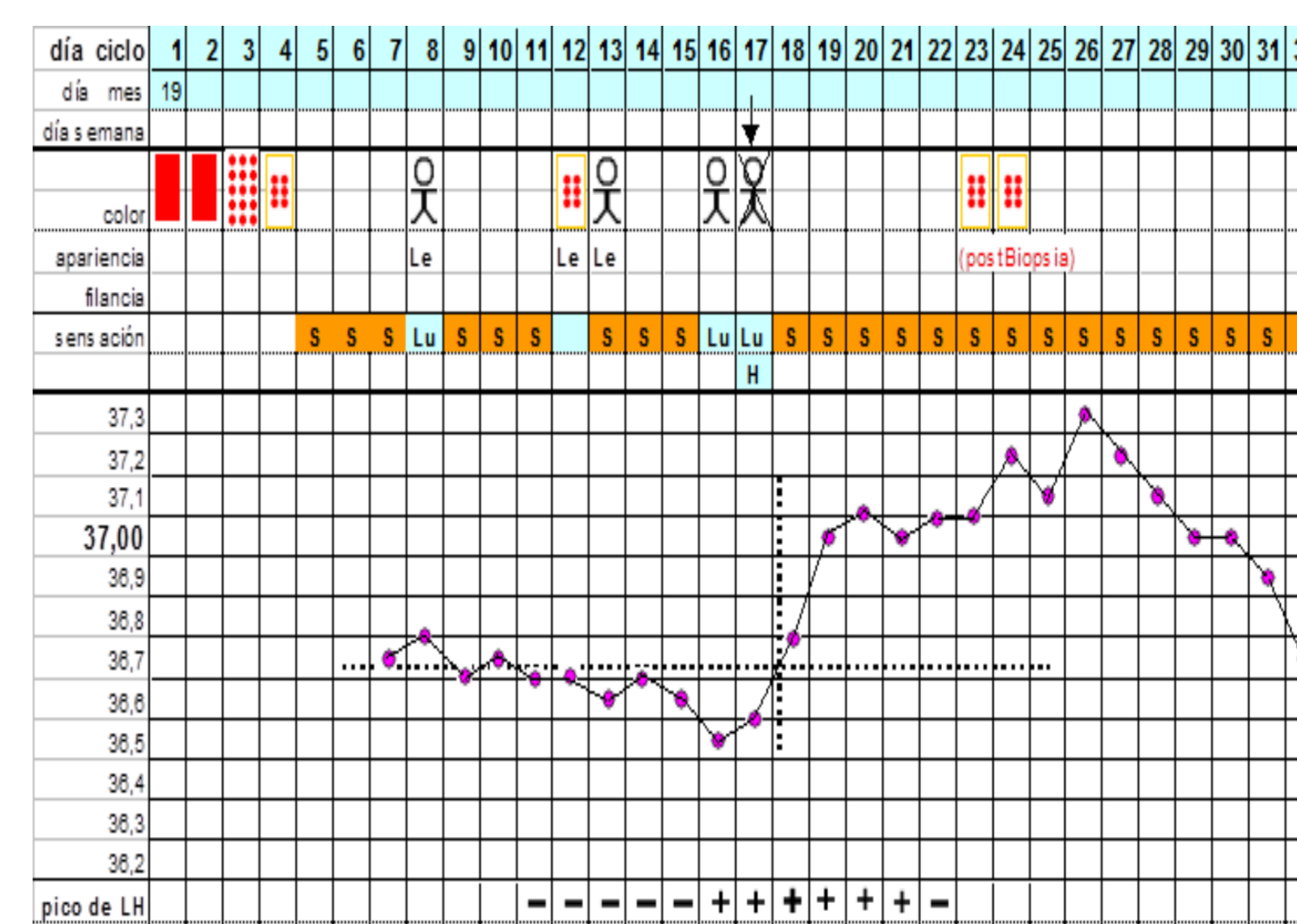
**OBJECTIVE:** We present a case series of symptothermal charting from women with breast cancer taking Tamoxifen in order **to clarify its effects on fertility indicators**. Additional tests were done to confirm fertility status in some cycles (hormonal tests, LH test, ovarian ultrasound, mucus characterization with microscopy). Figure 1 shows a typical symptothermal chart.



**Figure 1.** Typical symptothermal chart

### Case 1:

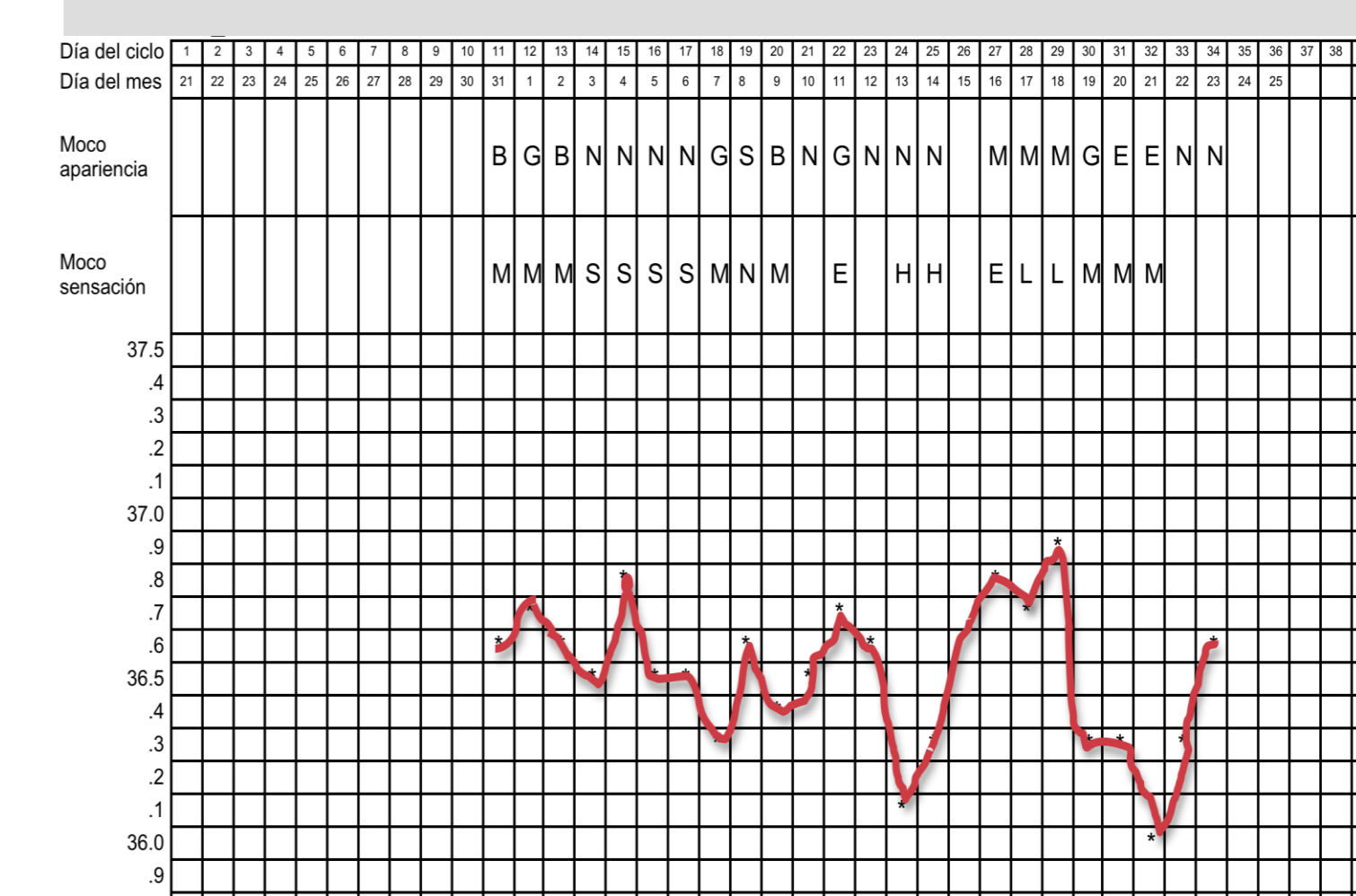
- 45 years old, 6 children. Teacher and user of NFP.
- Breast cancer treated with surgery and radiation.
- Normal symptothermal charts before treatment with TMX.
- Charts during 3-years TMX treatment mainly showed:
  - Lengthening of cycles, shortening of menstruation
  - Biphasic temperature pattern (ovulation confirmed with LH+)
  - Some persistent follicles
  - **Decrease or lack of cervical mucus.** (Figure 2)



**Figure 2.** Chart of an ovulatory cycle with abnormal cervical mucus pattern (Le=milky, S=dry, Lu=lubricative, pico de LH=LH peak)

### Case 2:

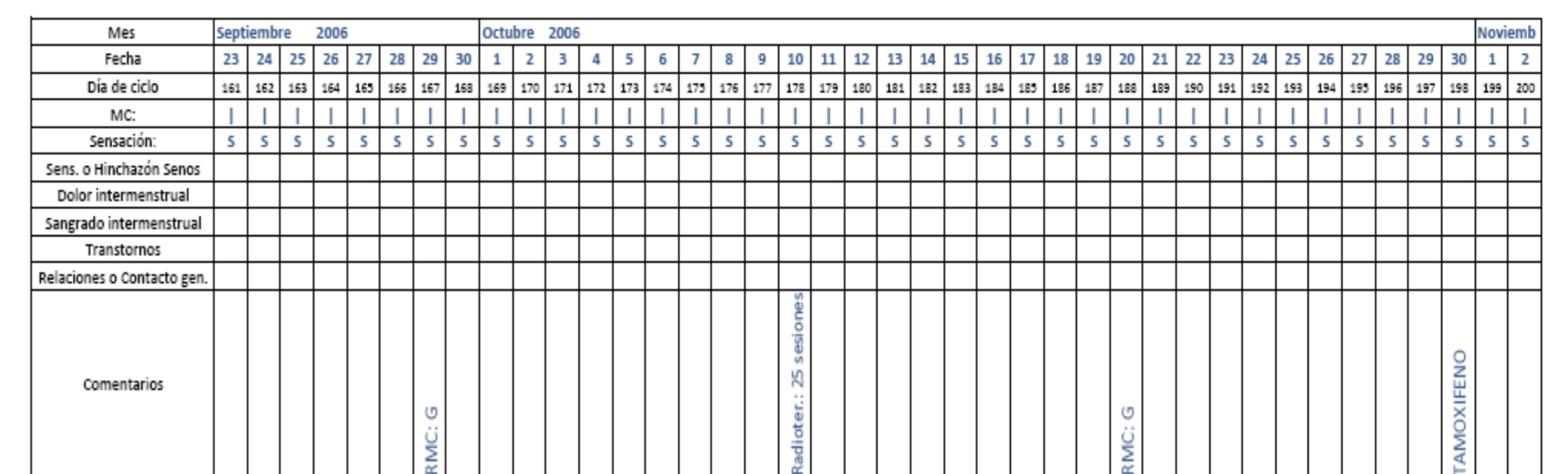
- 33 years old, 1 child. Teacher and user of NFP.
- Breast cancer treated with surgery, chemotherapy and radiation.
- Normal charts before TMX.
- Charts during 5-years TMX treatment showed similar changes as case 1.



**Figure 3.** Chart of an anovulatory cycle with abnormal temperature and cervical mucus pattern (M=wet, S=dry, H=humid, L=lubricative, B=white, N=no mucus, G=tacky, E=elastic)

### Case 3: (Figure 3)

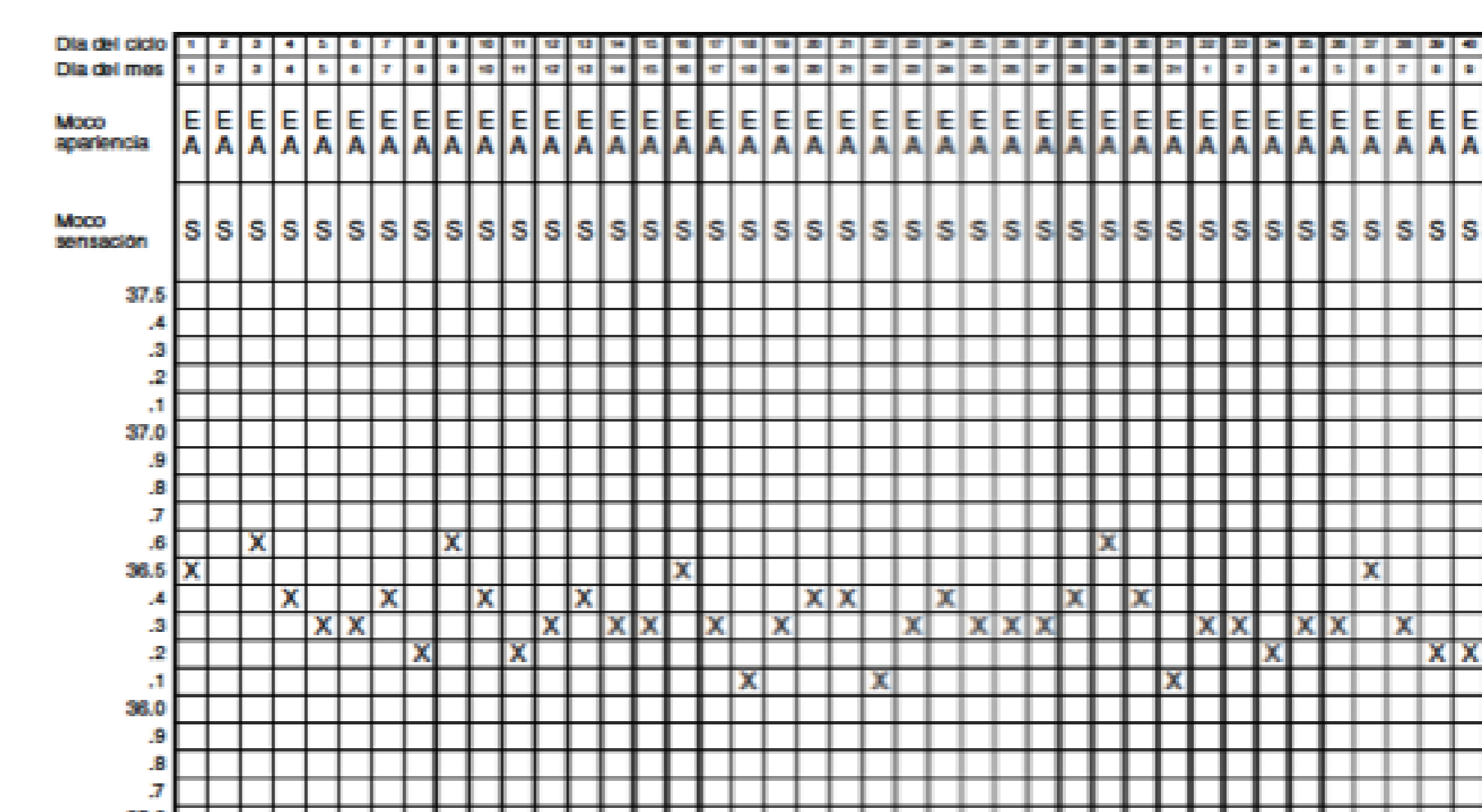
- 44 years old, 6 children.
- Breast cancer treated with surgery and radiation.
- Charts during TMX treatment showed:
  - Anovulatory and ovulatory cycles
  - **Abnormal mucus and temperature pattern progression** (Figure 3)



**Figure 4.** Chart under chemotherapy and TMX. Amenorrhea. Anovulatory cycle, lack of cervical mucus (S=dry sensation)

### Case 4:

- 40 years old, 3 children. User of NFP.
- Breast cancer treated with chemotherapy, surgery and radiation.
- Charts during chemotherapy showed infertility, confirmed by US and hormonal tests.
- During TMX treatment:
  - **Cervical mucus was missing** (temperature not recorded) (Figure 4).



**Figure 5.** Chart of anovulatory cycle with abnormal temperature and cervical mucus pattern (E=elastic, A=yellow, S=dry sensation)

### Case 5:

- 41 years old, 2 children. User of NFP.
- Breast cancer treated with surgery, chemotherapy, radiation and TMX.
- Amenorrhea from the 3<sup>rd</sup> cycle of chemotherapy. Charts during TMX treatment showed:
  - Infertility, confirmed by US and hormonal tests.
  - **Cervical mucus pattern was altered, with dry sensation at vulva** (Figure 5).

## CONCLUSION

- During treatment with TMX:
  - Cervical mucus is diminished or missing, even in ovulatory cycles. **Peak day cannot be identified.**
  - In ovulatory cycles, **other fertility indicators (temperature, cervix) are not altered.**
  - **Additional tests to confirm fertility status can be used** if in doubt.
- Women taking TMX can use NFP to avoid pregnancy, but rules of the symptothermal method concerning indicators other than mucus (temperature, Döring rule, palpation of the cervix) must be strictly followed.