

NIPPLE HYPERTHERMIA IN MAMMARY CANCER

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SUMMARY

The sign of « nipple hyperthermia » has been valued and connected with mammographic report in a series of 2230 patients. In the 19 patients with nipple hyperthermia we have found a carcinoma in 10 (52,6%), while in 9 (47,4%), hyperthermia is caused by a benign affection on phlogistic basis.

In malignant forms the report has resulted frequently associated to mammographic and thermographic patterns of quick development.

The writers lay stress on that the sign is not specific, but only suspect for cancerous form; in this instance it could be the sign of a defavourable prognosis.

INTRODUCTION

In contact thermography with liquid crystals of cholesterol the nipple appears generally hypothermic (black coloured) (fig. 1 A), or in some cases, it presents same colour (and same temperature) red-brown of bottom (fig. 1 B) (2, 6).

The checking of a hyperthermic nipple (fig. 2) represents a very suspect or certain sign of cancer and it is framed in regional not vascular increases of temperature (6, 7, 9).

The purpose of this study is to analyse, on personal experience, the frequency of appearance, the signification of this sign and the possible correlation with mammography aspects.

MATERIAL AND METHODS

Our observations concern a continuous series of 2230 patients, who presented on medical indication. We have intentionally neglected the hospitalisations that select ulteriorly the casuistry.

In addition to clinical examination all women have been always subjected to mammography, thermography, diaphanoscopy and, when it was necessary, echography. Contact thermography has been performed using cholesteric films of different firms.

Following the same methodology in use for telethermography, women have been kept in a room with a stable temperature of 21 °C, in such a way to obtain comparable basis informations.

Dynamic test of forced cooling, more or less extended, has been applied when it was necessary (1).

Results got in the examination patients are the following ones:

a) with integrated examination we have checked 95 carcinomas (4,3 %); in these the thermography only has resulted positive in 84 cases with a sensitivity of 88,4 %, the wrong negative thermographies have been 11 (11,6%);

b) in 10 (9,5%) we have checked the « nipple hyperthermia sign »; in 9 of these women were present other thermovascular anomalies; in only one nipple hyperthermia represented the unique pathology element. At histological checking in this group we have found 8 intraductal carcinomas, 1 lobular carcinoma and 1 Paget's disease.

Fig. 1.

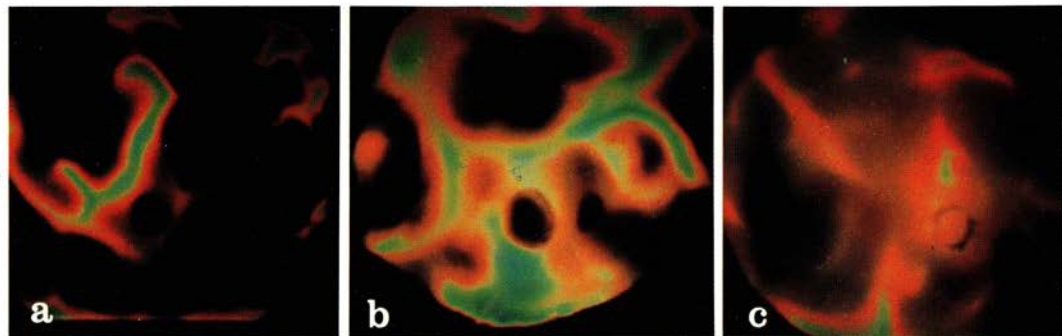


Fig. 2.

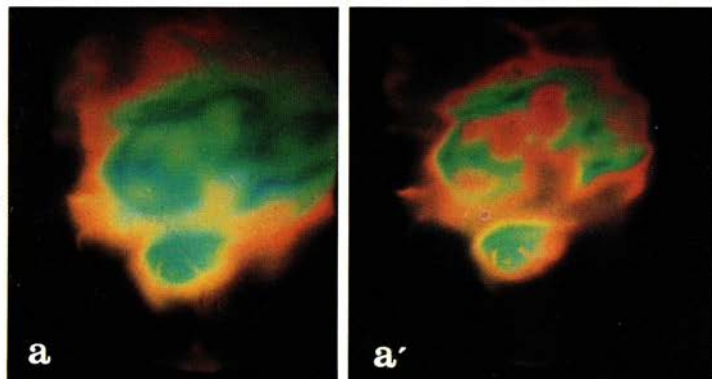


Fig. 3.

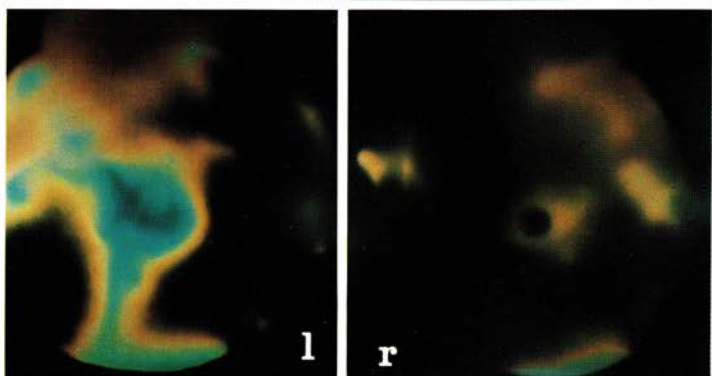


Fig. 1. — Normal patterns; *a*) Hypothermic nipple; *b*) Hypothermic nipple in spite of periareolar vessels; *c*) Nipple with the same temperature of bottom.

Fig. 2. — *a*) Left nipple hyperthermia in a case of carcinoma; *a'*) Hyperthermia is dynamic cooling test resistant.

Fig. 3. — Nipple and periareolar hyperthermia in a case of left galactophoritis.

Table 1. — Radiographic aspects in 10 carcinomas with nipple hyperthermia.

| Cases | Ø in cm | Morphology | Micro calcification | Nipple retraction | Distance tumour/nipple (cm) |
|--------------|---------|--------------|---------------------|-------------------|-----------------------------|
| 1 | 1 | node | — | — | R.A. (*) |
| 2 | 3 | condensation | — | — | 4 |
| 3 | 5 | condensation | — | — | 5,5 |
| 4 | 3 | condensation | + | — | 9 |
| 5 | — | — | + | — | 2,5 |
| 6 | diffuse | condensation | + | — | |
| 7 | diffuse | condensation | — | + | |
| 8 | diffuse | condensation | — | + | |
| 9 | 2 | node | — | + | R.A. |
| 10 | 4 | condensation | — | — | R.A. |

(*) Retroareolar.

In same patients the thermography report has been put in connection with the mammo-graphy report, taking into consideration the following parameters:

- tumour dimension;
- morphologic aspects (condensation, node);
- presence of microcalcifications;
- nipple concomitant retraction;
- distance tumour nipple (the measurement is written in cm from nipple basis to nearer contour of cancer).

The table I resumes the reports.

c) nipple hyperthermia, resistant dynamic cooling test, has been found on absence of malignant tumour in 9 of 2230 examination women; these women have resulted to be suffering from:

- recent scars (2);
- inflamed cysts (2);
- inflamed galactoceles (1);
- nipple erosive adenomatosis (1);
- inflammation (1);
- duct ectasia (1);
- displasia (1).

DISCUSSION

Thermography sensitivity (88,4 %), in the examined casuistry has resulted satisfactory; we note that it is matter of symptomatic women.

Nipple hyperthermia checked totally in 19 patients, has been caused by a malignant neoformation only in 10 of these

women (52,6 %), while in remaining 9 cases (47,4 %), hyperthermia has been the consequence of a metabolic alteration supported by a benign disease, generally over inflammatory basis (fig. 3).

This checking takes away specificity to the sign; it remains however valid the concept that nipple hyperthermia, in absence of clinic benign alterations, may be considered a very suspect sign.

The radiogram analysis of patients with nipple hyperthermia and carcinoma (tab. 2) showed the significant relation that exists between the presence of this sign and large dimension tumours and with condensation aspect (7 over 10), even if they are localized deeply.

In the carcinoma group with thermographic cooling nipple, on the contrary, the little nodular neoformations have appeared prevalent (78,8 %), while the condensation large dimension neoformations have been little numerous.

The radiographic aspect of tumours with nipple hyperthermia and big thermovascular anomalies, almost always associated, would make us mind tumours in highly evolution stage and so with massive production of heat. We presume that, mostly in the case in deep seat,

Table 2. — *Radiographic aspects in two groups of carcinomas with and without nipple hyperthermia.*

| | | average dimension | node | condensation | micro calcifications |
|----------------------------|----|----------------------|-----------|--------------|-------------------------|
| With hyperthermia | 10 | 4 cm | 2 (20 %) | 7 (70 %) | 1 (10 %) |
| Without hyperthermia . . . | 85 | 2 cm | 67 (79 %) | 9 (10,5 %) | 9 (10,5 %) |

heat is such as to reach the nipple by conduction or convection, perhaps through the liquid held in galactoforous, as Gordenne supposed (^{4,5}).

Nipple hyperthermia from carcinoma could be considered a sign of high metabolic activity and accordingly an unfavourable sign for prognosis (⁸).

CONCLUSION

Nipple hyperthermia appears in a rather low percentage of carcinomas and it is not a specific sign; its checking in passing, in absence of clinic alterations of benign sort, must make us suspect the presence of a carcinoma.

Nipple hyperthermia, when it is present, may be considered a defavourable prognostic sign; in fact it appears more

frequently in tumours with radiographic and thermographic signs of quick development.

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