

## **Analysis of Actinic Effect after Radiotherapy in the Uterine Cervix Carcinomas**

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**Abstract:** The boarding more effective for the control of the cancer of the uterine cervix is the precocious diagnosis. However a great number of malignant tumors are identified in very advanced periods of training, reflecting the lack of access to the preventive examination. The control of the effectiveness of the treatment for radiation if makes with the colpocytological analysis, where it is possible to follow the patients, detecting residual or recurrent tumors, allowing in skillful time, the administration of therapies you add. This work had as objective: the identification of the frequency of examinations, with presence of epithelial cells presenting radiotherapy effect and the evaluation the evolution, through the colpocytological, of cases with uterine cervix cancer treated with radiation. For the election of the group of study of the present work, a survey of the cytopathological examinations of control was made radiotherapy, of the 270 patients, through the archive of the Division of Pathology/DIPAT of the National Institute of the Cancer, 112 patients had been excluded, for diverse reasons. The total of colpocytological carried through by the 158 patients, of this retrospective study, was of 307, varying of 2 the 6 examinations for each patient, in a space of 18 months. The diagnostic had been separate in five Groups. Group A: Cells with effect of actinic nature, negative for malignity. Group B: Negative for malignity, normal cytological examination. Group C: Atypical cells with radiotherapy effect, displasia after-irradiation?. Group D: Positive for malignity. Group E: Unsatisfactory material and/or no conclusive. Results: Group A - 68.73%, followed of Group C – 15.30%; Group B – 11.73%; Group E- 2.61% and finally Group D with 1.63%, which represents the positive cases. The evolution of the cases of control, after radiotherapy, showed that 81.25% had kept the diagnostic. It was observed that 12.50% had passed of suspicious to negatives; 6.25% had been passed by negative to suspected for and did not have none case that evolved of negatives/suspicious for positives. The last diagnostic had been considered as well as first too. On the basis of the analysis of the control diagnostic cytological after radiotherapy, was possible to conclude that the great majority (81.25%) had kept the result. In 86.07% of the cases, the result was of the Group A and the B (negative for malignity, with presence and absence of cells actinic effect, respectively). Our treatment got an excellent index of tumor reply, exactly being the prognostic directed only to the patients of the study. [The Journal of American Science. 2005;1(1):17-22].

**Key Words:** cytological; actinic; radiotherapy; uterine; cervix; carcinomas

### **Introduction**

According to Health Ministry, in Brazil, enters the death causes, the cancer appears in according to place, representing a 15% tax. Analyzing the projection of the National Institute of the Cancer in 2003 it was observed that the uterine cervix cancer comes reaching as the place in the feminine population (Figure 1), however the Registers of Cancer of Population Base (RCPB), with consolidated information sample that the uterine cervix cancer was the tumor most incident in the cities of Belém and Goiânia and the second more incident tumor in Fortaleza, Campinas and Porto Alegre (1-5).

In the world-wide scale, malignant cervix tumors correspond to the second more frequent feminine

neoplasia and the index of deaths it shows decreasing, due to precocious detention and the institutions that take care of adequately of the therapeutic processes (6-8).

Despite the knowledge each acquired bigger time through innumerable research in the whole world, the boarding more effective for the control of the uterine cervix cancer, is the precocious, possible diagnosis through the cytopathological examination - known popularly as test of Papanicolaou. This examination is painless, cheap and efficient, being perfectly possible to detect intra-epithelial injuries and to cure them before if becoming cancer (5,9-12).

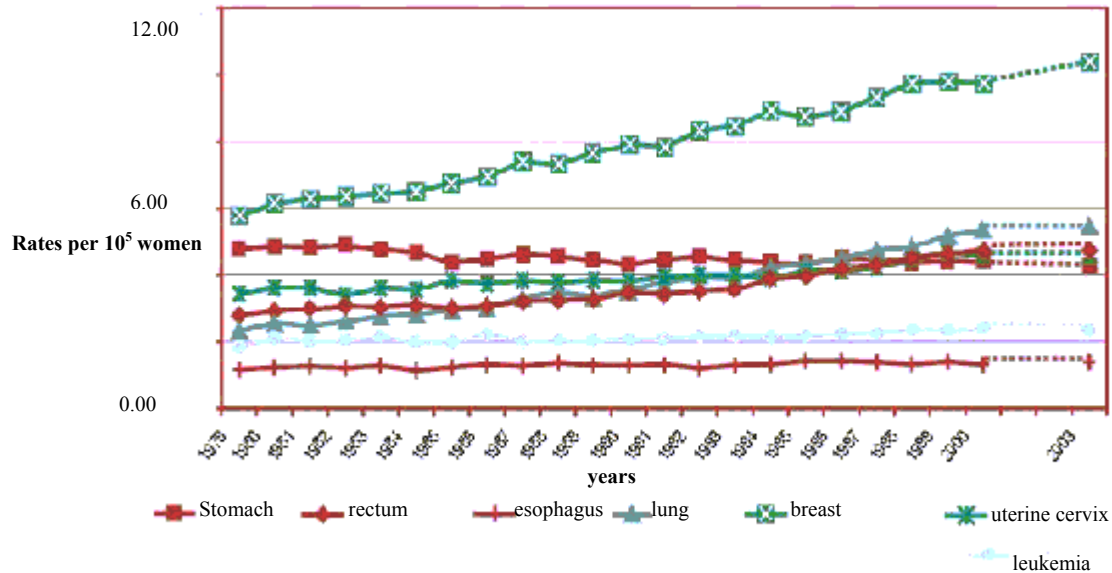


Figure 1. Rude taxes of mortality for 100,000 women for the tumor most frequent, Brazil, 1979-2000 and projection 2003. Source: Brazil, Health Ministry, National Institute of the Cancer. Estimate of the incidence and mortality by Cancer in Brazil.

When the injury requires a treatment, the doctor will be able to use destructive therapies as the cryosurgery (freezing), cauterization (burning), or laser (surgery to destroy the abnormal area without damaging the fabric healthy adjacent). However, a great number of diagnosis is made when the tumors are in periods of training very advanced, reflecting the lack of access to the preventive examination, for difficulties in long-distance relation, ignorance or even though misinformation. The supervened average of the women diagnosed with uterine cervix tumors, classified as stadiums IIB (classification according to FIGO/*Fédération Internationale de Gynécologie et d'Obstétrique*) in ahead, for example, that they make the conventional treatment for pelvic radiotherapy, turns around 40%.

The control of the effectiveness of the treatment for radiation if makes with the colpocytological analysis, where it is possible to follow the patients, detecting residual or recurrent tumors, allowing in skillful time, the administration of therapies you add. the 8,13,14,15,16 Even so cellular alterations provoked by the action of the ionizing radiation well are told in literature and are of great relevance, in some countries of the world, our Country still have great necessity of more studies. The cytological evaluation of the actinic effect, deserves great attention and training, for account

This work had as objective: the identification of the frequency of examinations, with presence of epithelial

cells presenting radiotherapy effects and the evaluation the evolution, through the colpocytology, of cases with uterine cervix cancer treated with radiation. of the importance in the therapeutic control of the patients after radiotherapy (17-23).

### Materials and Methods Characteristic of the Sample

In July of 2003, through the folder of archive, in the Service of Gynecology of the Hospital of Oncology (HC II/INCA), the patients with scaly uterine cervix carcinoma had been catalogued, directed to the radiotherapy, in the period of January the July of 2000, representing a total of 270 patients. All the cases had cytological examination confirmed by the biopsy, before the treatment.

In accordance with the registers, in the great majority of the directed patients, the tumors were local advanced; the clinical staging was carried through on the basis of the rules of the FIG (*Fédération Internationale de Gynécologie et d'Obstétrique*) is demonstrated (Figure 2).

**Figures. Actinic effect in epithelial cells**

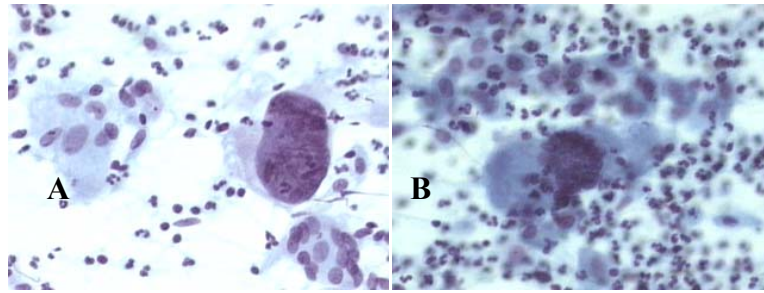


Figure A: Great nuclear increase, however chromatin keeps homogenize. Figure B: Multinuclear cell. It is noticed the leukocyte infiltration. Images obtained by the archive of smears of the Division of Pathology / INCA

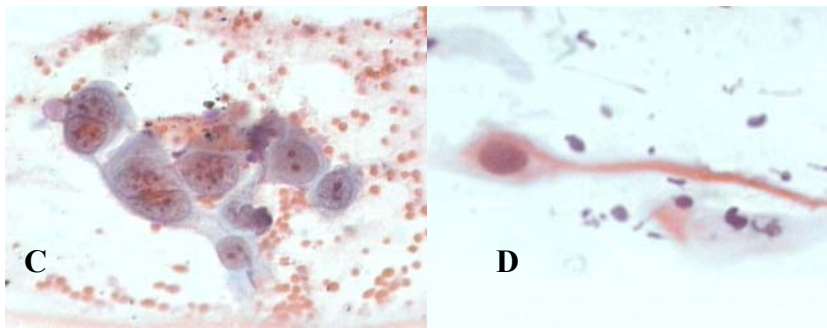


Figure C: Multiple presence of macronucleus and nucleus. Figure D: Cell bizarre. It is noticed the leukocyte infiltration.

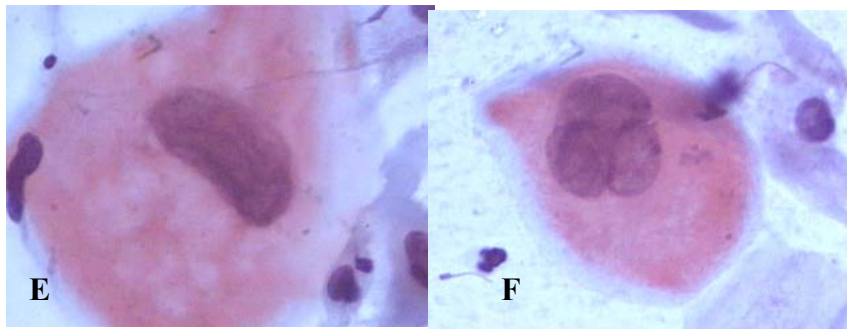
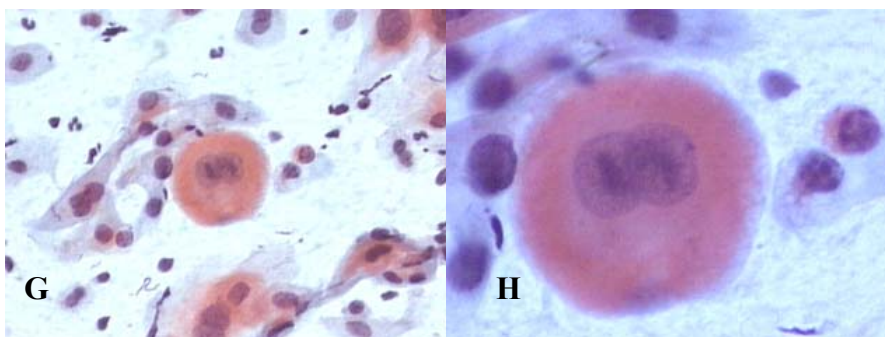


Figure E: Presence of macrocytose (great cellular increase). Figure F: Macrocytose and multinucleation. Images obtained by the archive of smears of the Division of Pathology / INCA



Figures G and H: The smears represent field of the same blade with different increases. Presence of the cell with binucleation and inclusion to intranuclear type "owl eye".

Images obtained by the archive of smears of the Division of Pathology / INCA

**Election of the Patients**

For the election of the group of study of the present work, a survey of the cytopathological examinations of control was made after radiotherapy, of the 270 patients, through the archive of the Division of Pathology/DIPAT of the National Institute of the Cancer. Later, it had the analysis of handbooks of the cases that had colpocytology of control, for attainment of excellent data.

By not possessing no cytological finding of control after radiotherapy 90 patients had been excluded, in the archives of INCA, 06 for not returning and 16 for arriving at the death. The total of colpocytology carried through for the 158 patients, of this retrospective study, was of 307, varying of 2 the 6 examinations for each patient, in a space of 18 months. The first colpocytology of control after radiotherapy, of each patient, after had an interval of 3 to 6 months the ending of the treatment.

Considering that the frequency of examinations, carried through after radiotherapy, varied of patient the patient; the concrete analysis was made through the result of last examination of control, what it reflects the situation of the evolution of the patients until November of 2003. The diagnostic had been separate in five Groups. Group A: Cells with effect of actinic nature, absence of malignity. Group B: Negative for malignity, normal cytological examination. Group C: Atypical cells with radiotherapy effect, displasia after-irradiation? (suggestive of return). Group D: Positive for malignity. Group E: Unsatisfactory material and/or inconclusive.

**Results**

The ages of the patients had varied of 35 to 88 years, with average of 59.5 years. Related to the colpocytology examinations which has been carried through, were observed that more of the half of the diagnostic they were of the Group A - 68.73%, followed of Group C – 15.30%; Group B – 11.73%; Group E - 2.61% and finally Group D with 1.63%, which represents the positive cases, as indicated in the Table 1.

In the Table 2 is demonstrated the result of the last colpocytology examination of control after radiotherapy of each group.

The evolution of the cases of control, after radiotherapy is represented in Table 3, where the percentage of each diagnosis is demonstrated, considering only first and the last diagnosis.

Table 1. Diagnostics of each group of the whole colpocytological exams realized after radiotherapy.

<i>Groups of the diagnostics</i>	<i>Findings with each diagnostic</i>	<i>Frequency of the cases (%)</i>
<b>Group A</b>	211	68.73
<b>Group B</b>	36	11.73
<b>Group C</b>	47	15.30
<b>Group D</b>	05	1.63
<b>Group E</b>	08	2.61

Table 2. Diagnostics results of the last colpocytological exam of control after radiotherapy of each group.

<i>Groups of the diagnostics</i>	<i>Findings with each diagnostic</i>	<i>Frequency of the cases (%)</i>
<b>Group A</b>	118	74.68
<b>Group B</b>	16	11.39
<b>Group C</b>	18	10.13
<b>Group D</b>	03	1.90
<b>Group E</b>	03	1.90

Table 3. Evolution of the cases of the control after radiotherapy.

<i>Evolution</i>	<i>% of cases</i>
<b>Keep the diagnostics</b>	81.25
<b>Suspects for negatives</b>	12.50
<b>Negatives for suspects</b>	6.25
<b>Negatives / suspects for positives</b>	00

**Appendix**

Square 1. Clinical staging, according to FIGO by each patient

STAGES OF FIGO	NUMBER OF CASES	% OF THE CASES BY EACH CLINICAL STAGE
Stage I	---	---
IA	---	---
IA1	---	---
IA2	---	---
IB	19	7.04
IB1	---	---
IB2	03	1.11
Stage II	03	1.11
IIA	02	0.74
IIB	109	40.37
Stage III	01	0.37
IIIA	01	0,37
IIIB	124	45.93
Stage IV	01	0.37
IVA	06	2.22
IVB	01	0.37

**Discussion**

The radiated cells show some cytochemistry alterations that can be due to enzyme release for the cytoplasmic destruction of organelles. The increase of the RNA synthesis occurs to nucleolus followed for the reduction of the synthesis of the DNA. Small doses of radiation can intermittently intervene with the production of messenger RNA e, therefore, to diminish the protein synthesis. Great doses inhibit the DNA synthesis and can take the irreversible damages in the nuclear DNA. The mitotic activity can be suppressed temporarily. Chromosomal and genetic abnormalities can be observed and occasionally resulting in the loss of the ability of dividing while the nuclear and cytoplasmic metabolism continues (20,24,25).

According to Shuheko et al, the cytology showed to be good method of control of uterine cervix cancer treated by radiotherapy, therefore in accordance with its studies, had not had cases false-positives and nor false negatives (21,22).

The pursuing through the colpocytology is important, mainly in the two first immediate years to therapeutic, due to the fact that 50% of the recurrences are detected in the first year of pursuing as well as 85% with two years. In five years of pursuing, 95% of the returns will

have been detected. Some groups of patients can after benefit with a systematic pursuing the treatment (9,10,21,22).

Campos has observed that the identification of malignant cells to the end of the treatment indicates that the tumor was not sterilized, while that its absence always does not mean activity lack, therefore can be had carried through a local sterilization of the tumor while persists in lymphatic or parametric ganglia. More than 80% of the patients were into menopause, however 60% of the smears were observed little more than were atrophics (26).

In accordance with some studies, the return occurs precociously during the pursuing and about 85% of these patient ones they go the death in two years. Our findings show that before the pursuing 06% of the patients had arrived at the death (27-30).

According to Teixeira et al, only 24% of the patients who had had complete reply to the radiotherapy had come back to have tumor activity, mainly in the two first years of pursuing, evidencing that the therapeutic reply it could be used as parameter for the prognostic definition in advanced cases (16).

**Conclusion**

On the basis of the analysis of the control cytological-diagnostic after radiotherapy, was possible to conclude that the great majority (81.25%) had kept the result. In 86.07% of the cases, the result was of the Group A and the B (negative for malignity, with presence and absence of cells c/actinic effect, respectively).

The treatment got an excellent index of tumor reply, exactly being the prognostic directed only to the patients of the study. The analysis of the evolution, through the colpocytology disclosed a small index of cases with actinic effect (negative for malignity) that the return cases had evolved suspicious - displasia after-irradiation (6.25%), and accurately the double of this value (12.50%), they were suspected and they had become negative.

The result of the last examination of control disclosed an increase in relation to the total of examinations of the diagnostic of the Group A (5.95%), and a discrete reduction in group B (0.34%), which are negative, the first ones, with effect, actinic and as without evident actinic effect. It was a reduction of 5.17% in the diagnostic number of the Group C. The group D has shown a discrete reduction-0,27% and the diagnostic of the group E has presented an increase of 0.71%.

The accompaniment of the patients must be made through the colpocytology examination, approximately 6 weeks after the treatment for radiation, with semester harvests in the 3 first years and after that annual, in case that it does not have return suspicion, thus preventing, any possibility of unsatisfactory materials for the

reading, beyond negative false results, since the cytological criteria, continue, for times, subjective.

It is of great relevance that the study continues, using others diagnostic techniques, as immunohistochemistry and cytogenetic, in the search of new markers that could differentiate the recidivates injuries of the actinic effect. Therefore the morphologic aspects are only insufficient, in some cases, to affirm a positive or negative diagnosis, without the necessity of the evolutionary accompaniment of the alterations, through annual the semester colpocytology.

This comparative study it would search the evaluation of the values predictive-positives and predictive-negative, being able to make possible the reduction of the cases false-positives and false-negative, therefore method in study is, for times, limited.

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