

반전성 유두종에서 PCNA와 세포고사체의 발현

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Expression of PCNA and Apoptotic Bodies in Nasal Inverted Papilloma

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- ABSTRACT -

Background and Objectives : Inverted papilloma of the nasal cavity and paranasal sinuses is uncommon benign lesion, in which there is an inversion of the neoplastic epithelium into the underlying stroma. Proliferating cell nuclear antigen (PCNA) indicates the cellular kinetic activity during the late G1 and S phase. Among the various approaches for evaluating the proliferative activity, PCNA has been recently introduced as an antigenic marker of cellular proliferation. Programmed cell death (apoptosis) is distinctive form of cell death manifested by characteristic chromatin condensation and DNA fragmentation, whose function is the deletion of cells in normal development, organogenesis, immune function, and tissue growth, but which can also be induced by pathologic stimuli. The purpose of this study was to detect expression of PCNA and apoptotic bodies, and to understand the mechanism of pathogenesis of nasal inverted papilloma. **Materials and Methods** : Twenty-nine cases of nasal inverted papillomas, 5 squamous cell carcinomas, 10 nasal polyps and 10 inferior turbinate mucosae were analyzed for the detection of PCNA and apoptotic bodies by immunohistochemical technique. **Results** : PCNA indices were $22.5 \pm 7.7\%$, $45.4 \pm 2.6\%$, $7.9 \pm 3.9\%$ and 0% in inverted papillomas, squamous cell carcinomas, nasal polyps and inferior turbinate mucosae. PCNA index of inverted papillomas with dysplasia was higher ($31.4 \pm 5.4\%$) than inverted papilloma without dysplasia ($18.5 \pm 4.6\%$). Apoptotic indices were $7.8 \pm 3.8\%$, $13.4 \pm 3.5\%$, $0.9 \pm 1.5\%$ and $0.4 \pm 0.8\%$ in inverted papillomas, squamous cell carcinomas, nasal polyps and inferior turbinate mucosae. Apoptotic index of inverted papillomas with dysplasia was higher ($10.0 \pm 3.2\%$) than inverted papilloma without dysplasia ($6.8 \pm 3.7\%$). **Conclusion** : These results showed that cellular proliferation and apoptosis play a role in development of nasal inverted papilloma. Also cellular proliferation is more important factor than apoptosis in development of nasal inverted papilloma. (J Clinical Otolaryngol 2000;11:230-236)

KEY WORDS : Nasal inverted papilloma · PCNA · Apoptosis.

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: 2000 8 10

: , 100 - 272

27가 82 - 1

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: PCNA

서 론

29 , 5 , 10 ,
10
29 9
0.5 4% , 20
Hematoxylin - eosin
가¹⁾

HPV HPV
2)
PCNA의 검출
60 1
PCNA (proliferating cell nuclear antigen) DNA , xylene
polymerase - delta DNA 2.5% hydrogen pe-
roxide 30 10 mM citric acid
3)
microwave oven 5 가 30
microwave oven 5 가
0.05 M Tris buffered saline (pH 7.6) 10
가 4)
1

LSAB
PC 10 (DAKO) 1 :
60 . Tris bu-
ffer 3 biotin 15
streptavidin - horseradish peroxi-
dase 15 . AEC chromogen
Meyer's hematoxylin

PCNA (Fig. 1).

재료 및 방법

(100)
200
연구재료 , 1000
1990 1 1999 7

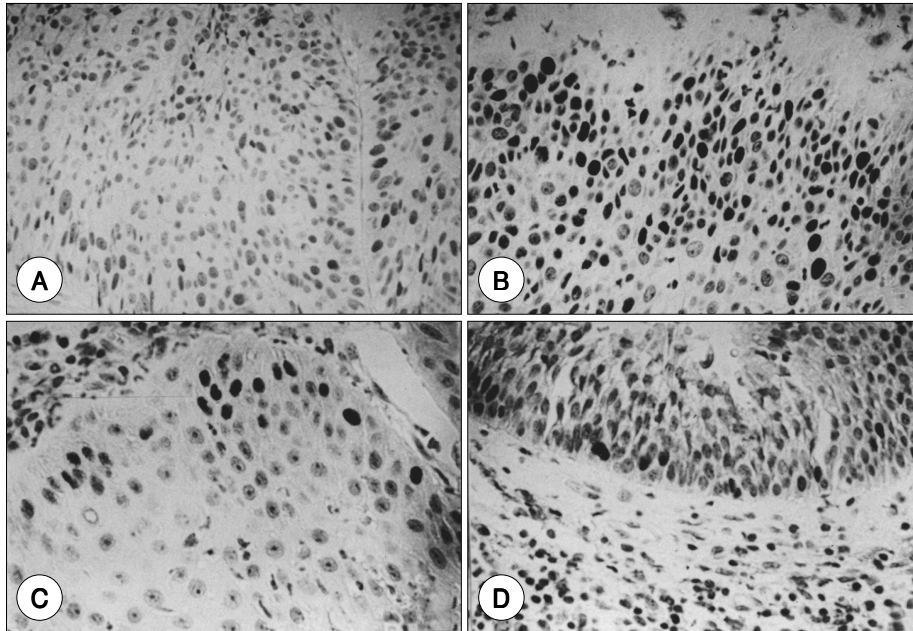


Fig. 1. Immunohistochemical staining of PCNA (x200). A : Squamous cell carcinoma. B : Inverted papilloma with dysplasia. C : Inverted papilloma without dysplasia. D : Nasal polyp.

5 200 PC- 30 . 가 ph-
 NA index . phosphate buffered saline 3,3 - diaminoben-
 zidine methyl green
 고사체의 검출 .
 L - lysin 4 5 μm (100)
 . Xylene 5 2 , 200 1000 5
 (proteinase K) 15 . 200 ap-
 Oncor (in situ apo-
 ptosis detection kit, ApopTagTMkit) in
 situ hybridization . DNA 가 2 μm
 3 - OH digoxigenin - nucleotide(de-
 oxyribonucleotide triphosphate) 가
 TdT(terminal deoxynu-
 cleotidyl transferase) 37 1 (Fig. 2).
 통계학적 검정
 30 antidigoxigenin peroxidase 가 , , ,

: PCNA

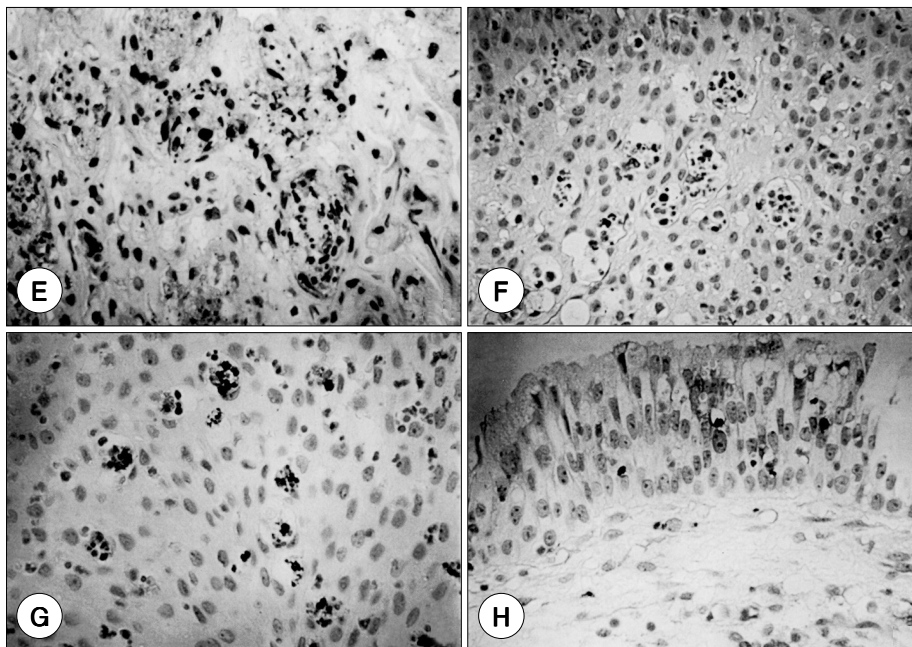


Fig. 2. Immunohistochemical staining of apoptotic bodies (×200). E : Squamous cell carcinoma. F : Inverted papilloma with dysplasia. G : Inverted papilloma without dysplasia. H : Nasal polyp.

Table 1. PCNA index and apoptotic index

| | IP* (N = 29) | SCC [†] (N = 5) | NP [‡] (N = 10) | IT [§] (N = 10) |
|---------------------|--------------|--------------------------|--------------------------|--------------------------|
| PCNA index (%) | 22.5 ± 7.7 | 45.4 ± 2.6 | 7.9 ± 3.8 | 0 |
| Apoptotic index (%) | 7.8 ± 3.8 | 13.4 ± 3.5 | 0.9 ± 1.5 | 0.4 ± 0.8 |

* : Inverted papilloma, † : Squamous cell carcinoma, ‡ : Nasal polyp, § : Inferior turbinate

(apoptotic index) PCNA 0.4% .
t - test ANOVA .
결 과 가 , 가
(ANOVA test, p<0.01)(Table 1).
PCNA 지수
PCNA 45.4% 가 반전성 유두종에서 세포이형성에 따른 PCNA 지수와 세포고사지수
, 22.5%. 7.9%,
0% PCNA
가 (ANOVA test, p<0.01)(Table 1). 31.4%,
PCNA 18.5% 가
세포고사지수 (t - test, p<0.01)(Table 2).
, 13.4% 가 10.04%,
, 7.8%, 0.9%,

Table 2. PCNA index and apoptotic index according to dysplasia in nasal inverted papillomas

| | IP* (N = 29) | |
|---------------------|------------------------|----------------------------|
| | With dysplasia (N = 9) | Without dysplasia (N = 20) |
| PCNA index (%) | 31.4 ± 5.4 | 18.5 ± 4.6 |
| Apoptotic index (%) | 10.0 ± 3.2 | 6.8 ± 3.7 |

* : Inverted papilloma

6.8% 가 (t - test, p<0.05) (Table 2).

고 찰

가⁶⁾ Ringertz⁷⁾ 20 0.5 4% 가 .
 가⁸⁾ 2) 1983 Syrjanen⁸⁾ HPV HPV 가
 field effect (multicentricity) (metaplastic)
 8 29% 가⁹⁾ (multicentricity) 가⁹⁾ 가

10) DNA G1 가 G2 M S
 11) PCNA (proliferating cell nuclear antigen) 36 KD non - hist - one , DNA polymerase - delta
 3) DNA G1 S
 1) 3H thymidine autoradiography, 2) Bromode - oxyuridine(Brd - U), 3) Ki - 67, DNA polymerase
 4) Ag - NORs , 5) flow cytometry S
 1) 2) 가 ,¹²⁾ 3) 가 ,¹³⁾ 4) NORs ,¹⁴⁾ 5) 가¹³⁾ 가 Murashima PCNA Takasaki¹⁵⁾ G1 S PCNA
 PCNA 가
 PCNA 가¹⁶⁾ PCNA 가¹⁷⁾ 가

PCNA

DNA¹⁸⁾

(apoptosis) 가¹⁹⁾

(necrosis) hematoxylin - eosin

가

(homeostatic function)⁵⁾ 가

가²⁰⁾

HPV type 16, 18 E6, E7, adenovirus E1A, E1B, c - myc, p53, bax, ras, bcl2, pRB²¹⁾

E7, E1B, c - myc, bax, p53, E6, E1A, bcl2, ras, pRB²¹⁾

DNA⁵⁾ HPV type 16, 18 E7 c - myc, pRB

가⁵⁾ , E6 p53

²²⁾ HPV type 16, 18 E6, E7 가

(susceptibility) 가 p53 가 E7²²⁾

Shoji²³⁾ Isacson²⁴⁾ 가 가

Guichard¹⁷⁾ vitro -

nectin neutrophil chemot - 가

actin mediator가

vitronectin⁵⁾

가 가 en - 가 가 가

donuclease가 cross - 가

linking 가⁵⁾ 가

²⁵⁾

결 론

가

PCNA

가

가

중심 단어 :

· PCNA ·

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