# 종양 진단의 병리학적 접근방법과 예후인자의 판정

## Diagnostic Approach and Prognostic Factors of Cancers

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## *Abstract*

When one follows a systematic approach to make a diagnosis of pathologic lesions, it is relatively easy to render a cancer diagnosis in almost all cases in routine daily practice. The first step is to recognize whether or not the specimen contains a lesion and then to determine whether the lesion is neoplastic or non   neoplastic. Since neoplasm is clonal proliferation, neoplastic conditions are usually composed of a single cell type, whereas non   neoplastic conditions consist of multiple different cell types.  After a neoplastic condition has been documented, the next step is to decide whether the neoplasm is of an epithelial origin or mesenchymal origin. The main differences between epithelial tumors and mesenchymal tumors include : 1) the tumor cells in epithelial tumors are oval, round to polygonal, while those in mesenchymal tumors are in general spindle   shaped : 2) epithelial tumors generally form tumor cell nests, while mesenchymal tumors arrange diffusely without forming tumor cell nests : 3) in epithelial tumors, desmoplastic stroma is well formed in between tumor cell nests, while in mesenchymal tumors there is no desmoplastic stroma ; and lastly, 4) feeding vessels open in the stroma in epithelial tumors, while they open between tumor cells in mesenchymal tumors.  After this one should decide whether the tumor is benign or malignant. The differences between benign and malignant tumors include : 1) differentiation ; 2) growth rate ; 3) growth pattern ; and 4) metastasis. The benign tumor is well differentiated, grows slowly, shows an expansile growth pattern with encapsulation, and does not metastasize. On the other hand, the malignant tumor is in general poorly differentiated, grows rapidly with frequent mitoses, shows an invasive growth pattern without capsular formation, and frequently metastasizes. In general malignant tumors show a high cellularity, tumor necrosis, and nuclear alterations, which include nuclear enlargement with a high nuclear/cytoplasmic ratio, hyperchromatism, pleomorphism, prominent nucleolus, and frequent mitoses. The final step is to classify the type of tumor based on the cellular differentiation and gross and microscopic growth patterns based on the light microscopic examination of H & E stained slides. For the correct identification of the tumor, immunostaining, electron microscopic evaluation, and molecular diagnostic tools may be required. After establishment of a diagnosis of malignancy, one should think about the prognostic factors. The two well   known prognostic factors (category  ) applicable in almost all tumors include stage and grade. Therefore, information about the stage and grade should also be included in the pathology report.

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1.

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.                     ,

.                     .                                    ,

.                              (stage)                    (grade)
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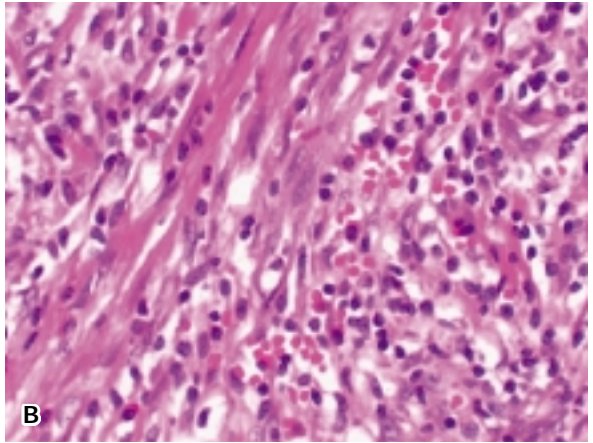.                                                         ,

,

2. A)　　　　　　　　　　　　　　　　B)

(

).

,
(　　)　　　　　　　　,

(　　1).

(mixed tumor　　)
.

(　　　　)
(
2A),

(　2B).

,



3. A)
B)

.
,
.

(　3A)
(　3B)

,

.

,

.　　　　　　　　　　　　　　　　　　　　,

1.

2. (I)

(differentiation)

.

desmoplastic stroma

(growth rate)                 .                        .

(growth pattern) expansile        infiltrative

(metastasis)                 .                    .



4.                                             ,
                    ,                     (nests)
          ,                                                     ,
                              .
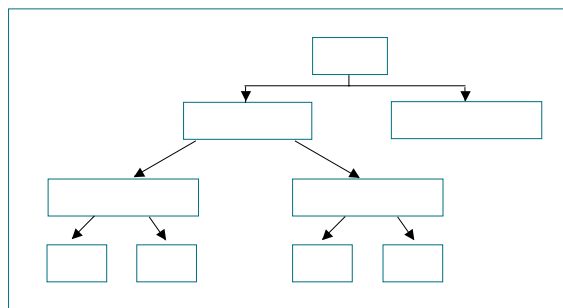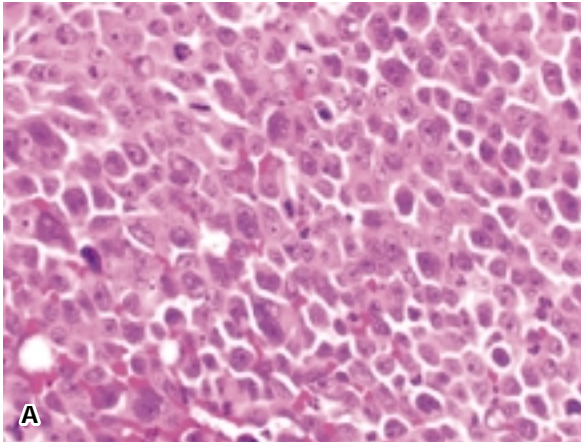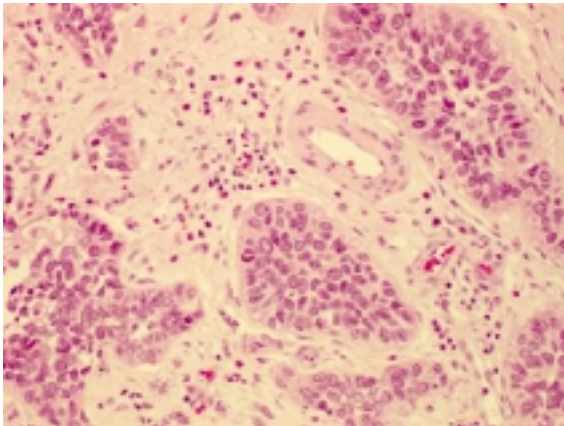


5.
                                            ,                     (nests)
                                              ,
                                    ,
                              .

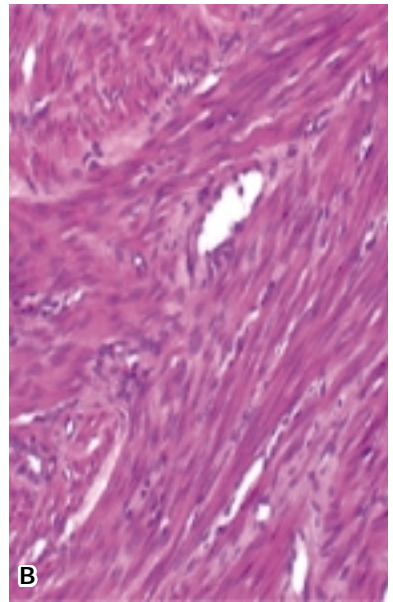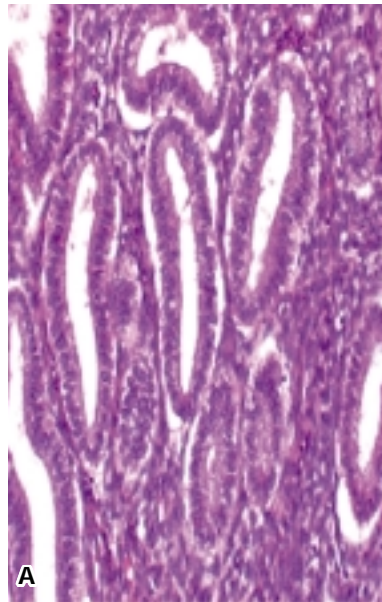                    (tumor cell nests)

          ,

                    (desmoplastic reaction),
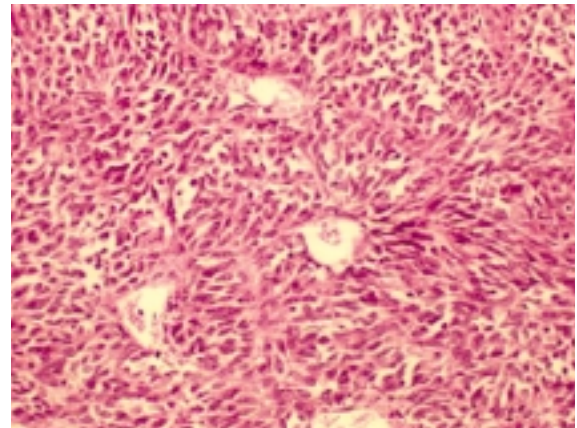
          (feeding vessels)

                                                        .

                                          ,                          (sarcomatoid

carcinoma),              (sarcoma with epithelioid

cells),          (lymphoma),          (melanoma),

(      4),                                          (neuroendocrine tumor)

                    ,                                (small round cell tumor)                     .

                                                            ,

(      1,      5).

                                        (desmoplastic stroma)                          ,

80~90%
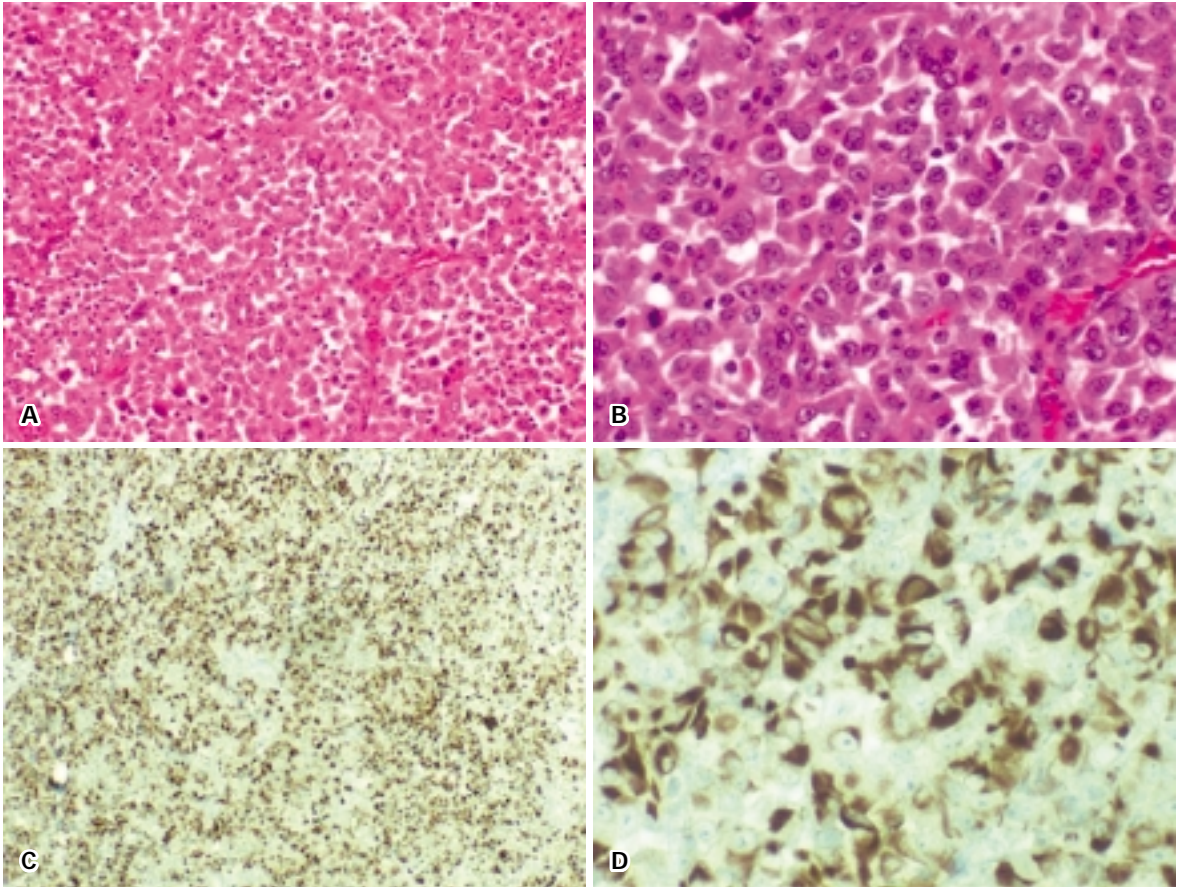
6. A)      , B )      :

(nests)

C)      , D )        : Cytokeratin

(     6A, 6B).                                                                                                    synaptophysin

,                                           chromogranin

(     6C, 6D).

cytokeratin,

vimentin,                     S   100         HMB

45,                    leukocyte common antigen                                                              2

,                                                (1, 2).

7.　　　　　　　　　　　　　　　(A)　　　　　　　　　　(B)　　　　　　　.
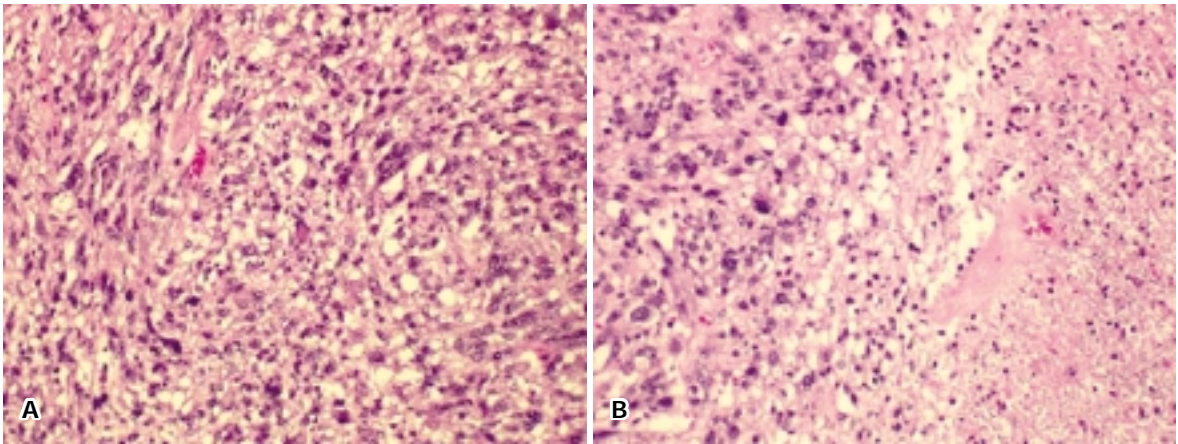
Furhman nuclear grade

(3).

　　　　　　　　　　　.　　　　　　　100　　　(　　　)

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　.

　　　　　　　　　　　.

　　　　　　　　　　　　　　　　　.

（　　7A),　　　　　　　　　(apoptosis)　　　　　　　　　　　　　　　　　　　　　　.

(　　7B),　　　　　　　　　.　　　　　　　　　Wilms' tumor　　　　(anaplasia)

　　　　　　　　　　.　　　　　　　　　　　　　　　　　　　　　　(4).

，　　　　　　　　　　　　（　　8A),

　　　　（　　8B),　　　　　　　（　　8C),　　　　　　　　　　　　4

　　　（　　8D)　　　　.

　　　　　　　　　　　　　　　　　　　.　　　　　400　(　　)　　　　10

　　　　　　　　　　　.　　　　　（　　9A)

　　　　　　　　　　（　　9B)

　　　　　　　，　　　　　　1

　　　　　　　　　.　　　　　　.　　1　　10

　　.　　　　　　　　　　　（　3).

　　　　　　　　　　　　　　.

图 8.                        ,                         ,                         ,                                        .

表 3.                                         (II)

|  |  |  |
|---|---|---|
|  | . | . |

(          10      /10
    ),                                              . | .
                                                      . | .
                                                      . | (          ).
  ( /      )                          (1:6)          (1:2)

                                                      . |  |
         (                                            . | .
1~ 10  /10            ),

         (1        /10            ).                    ,                                ,
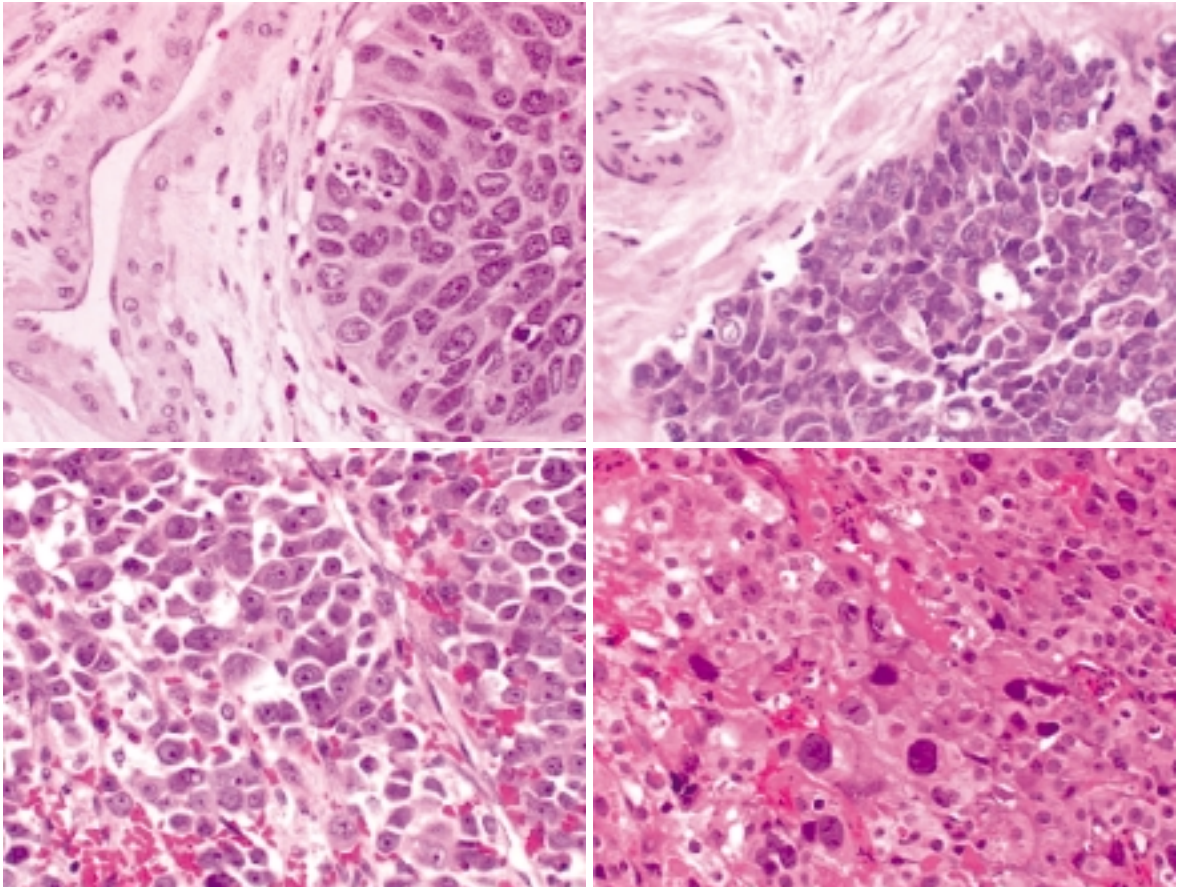
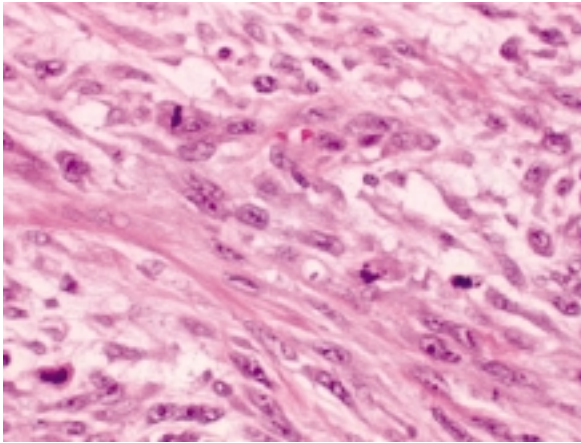9.                                                                                                          .
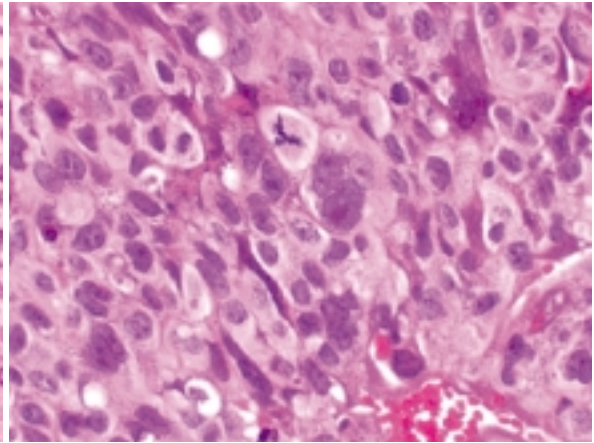
| 4. | |
|---|---|
| category I | , |
| category II | DNA ploidy, nuclear proliferative activity, angiogenesis, (apoptosis), |
| Category III | oncogenes, , growth factors, |
| category I | |
| category II | |
| category III | |

.

,          ,

.

,

,

(growth pattern)

.

.

H & E

| 5. | |
|---|---|
| (T) | |
| TX | . |
| T0 | . |
| Tis | |
| T1, T2, T3, T4 | |
| (N) | |
| NX | . |
| N0 | . |
| N1, N2, N3 | |
| (M) | |
| MX | . |
| M0 | . |
| M1 | . |

,                  ,

,                                      .

<... >
.

| | 6. Fuhrman | | | |
|---|---|---|---|---|
| | 100 | 400 | | |
| 1 | - | - | + | 10μ |
| 2 | - | + | + | 15μ |
| 3 | + | + | + | 20μ |
| 4 | + | + | - | 20μ |

,

.                    category I

.                    category II        III


(    4)(5).


## 1.        TNM    (    5)(6)

T

(lumen)                    (depth of inva-

sion)        ,                    (solid organ)

            T            .

    N0, N1, N2, N3                    ,

                        N

        ,            (regional lymph node)

    ,

                ,

        N        M            .




                N            ,

                T

    .                    M0,        M1

    .


    T, N, M

        I, II, III, IV            , I    II

(localized disease)        , III    IV

(advanced disease)                .

                I, II, III, IV

    .


## 2.

                        (1,  2,

7~ 9).                    (histologic

grade)                    (nuclear

grade)        .                    Broders

                    4                .

    75%

    1    (grade 1), 50%        75%

        2    (grade 2), 25%        50%

        3    (grade 3), 25%                    4

(grade 4)                (7).            2

3                        2        3

            3            (modified

Broders' grading), 1            (well differentiat-

ed), grades 2    3            (moderately

differentiated), 4            (poorly differentiated)

            .                ,            2




                (1, 2)        3                .




                Fuhrman                (3

|  |  |
|---|---|
| 7. | 8. |

7.

1.      ,   ,
2.
3.
4.
5.     sign
6.
7.
8.
9.

8.

1.     (  ,  ,      ,    
     (                         )
2.
3.
4.
5.
6.
7.           :              ,
             ,
8.
9.

Black      (9)

. Fuhrman

.      (100× )

3     4   ,

1     2   .      3   4

3         4   .    1

2       (400× )

2   ,

1    (   7). Black

5          ,

,     ,

.

.

1, 2, 3, 4             .

.

.

.

B     C

.

.

.

.

8     ,

9

.

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1. Cotran RS, Kumar V, Collins T. Robbins Pathologic Basis of Disease. 6th ed. Philadelphia : WB Saunders, 1999 : 260 - 327

2. Lieberman MW, Lebovitz RM. Chapter 24, neoplasia. In Anderson's Pathology, 10th ed. St. Louis : Mosby, 1996 : 513 - 47

3. Beckwith JB. Wilms' tumor and other renal tumors of childhood : a selective review from the National Wilms' Tumor Study Pathology Center. Hum Pathol 1983 ; 14 : 481 - 92

4. Fuhrman SA, Lasky LC, Limas C. Prognostic significance of morphologic parameters in renal cell carcinoma. Am J Surg Pathol 1982 ; 6 : 655 - 63

5. Hammond ME, Fitzgibbons PL, Compton CC, Grignon DJ, Page DL, Pajak TF, et al. College of American Pathologists Conference XXXV : solid tumor prognostic factors  which, how and so what? Summary document and recommendations for implementation. Cancer Committee and Conference Participants. Arch Pathol Lab Med 2000 ; 124 : 958 - 65

6. Greene FL, Page DL, Fleming ID, Fritz AG, Balch CM, Morrow M, et al. AJCC Cancer Staging Manual. 6th ed. Springer, 2002

7. Giacomarra V, Tirelli G, Papanikolla L, Bussani R. Predictive factors of nodal metastases in oral cavity and oropharynx carcinomas. Laryngoscope 1999 ; 109 : 795 - 959

8. Jemal A, Murray T, Samuels A, Ghafoor A, Ward E, Thun MJ, et al. Cancer Statistics, 2003. CA 2003 ; 53 : 5 - 26

9. Black MM, Speer FD. Nuclear grade in cancer tissues. Surg Gynecol Obstet 1957 ; 105 : 97 - 102