

1

1, 2 3
1, 3 · 1 · 2, 3

(pernicious anemia)

, : ○ , , 64
:
, B12 , : 9

, 가 가 (Fig. 1)

1855 Thomas Addison

1872

Biermer1)

가

B12

2).

가 ,

90% 40- 60 3).

,

가 ,

, ,

1966 4)

가 20 가 ,

. 64

가 , 2

, 7

Fig. 1. Chest CT revealed well-defined mediastinal mass in the left side of the prevascular space.

Masaoka

III

(Fig. 2)

6MV 1 180cGy

4,500cGy

, 7

Tensilon

Mestinon

, 2

: 120/70mmHg,

: 1998 7 23

: 1998 12 10

74 / , 20 / , 36.8 ,

Fig. 2. Pathologic findings of thymic mass revealed anaplastic cellular proliferation with extensive necrosis. Individual tumor cells are made up of round to oval nuclei with prominent nucleoli and some mitoses. Capsular invasion are noted. Invasive thymoma (H & E, × 400).

Fig. 3. Peripheral blood smear revealed hypersegmented neutrophil (7 lobe, wright stain, × 400).

7.9g/dL, 122.4fL,
42.2pg, 34.4g/dL,
0.8%, 3,120/μL(66.4%,
24.3%, 4.7%), 184,000/μL ,
10.8 35.5 .
8.8mg/dL, BUN 17mg/dL, 6.4g
/dL, 3.2g/dL, 1.1mg/dL, alkaline pho-
sphatase 77U/L, AST 46U/L, ALT 31U/L, 4.2mg/
dL, 282.28ng/mL, B12 42.24pg /mL,
8.59ng/mL . LDH 331.4U/L
139.37U/L 가 875.73pg/mL
, Ig G 2,451mg/dL, Ig A 292mg/dL, Ig M 106.6mg
/dL ,

가
:
M:E

(Fig. 3 & 4).

: 1/3

Fig. 4. Bone marrow smear revealed nuclear- cytoplasmic asynchronism in polychromatophilic normoblast (Wright stain, × 1,000).

가 ,
pH 8.0
:
B12
Plexotin(cyanocobalamin 3,000μg)
, 6
13.0g/dL 3,170/μL
201,000/μL B12 1106.9pg/mL
, 1
.

1855 Thomas Eddison

, 1872 Biermer¹⁾가 ,
 . 1929 Castle⁵⁾ 가
 , Meulen- B12
 gracht ⁶⁾ ,
 cobalamine cobalamine
 .
 Irvine²⁾ Taylor⁷⁾ B12 ,
 2mg ,
 2mg
 가 Grave 3- 6
 13). Cobalamine
 Addison , ,
 2 7),
 가
 30% 가
 가 가 20
 13). 5
 5% 6
 5 가 5% 6
 7).
 71% ,
 70% 가 , 10% , 5%
 15%
 8). 가 type A
 , , ,
 B
 , Sjogren , , ,
 2).
 Raynaud , , , Helicobacter pylori
 , Takayasu ,
 가 가
 30- 50% 8).
 + 가 ing type II binding 2 가 14)
 8).
 , , 90%
 , 9), 10), 11)
 12) , 가 15).
 IgG
 H⁺, K⁺- ATPase
 가 , , 16).
 가 , H⁺, K⁺- ATPase
 92kD

IgG

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10- 15%
50- 60% IgG 가 17.
20 가
가
18), 19) 20)
cobalamin
1mg
2 2 4 1 1
, 12
48
2- 3 가 7
, , 1 2
2
cyanocobalamine 3,000µg 1
6 가 7.9g/dL
13.0g/dL 1

Herein we wish to report a case of pernicious anemia and myasthenia gravis occurred after treatment with removal of an invasive thymoma and irradiation.

Nine years ago, the male patient was visited due to chest pain, and was found a mediastinal mass at his age of 55. He received open thoracotomy and was found stage III invasive thymoma which infiltrated phrenic nerve and pericardium. After removal of thymoma, he received 4,500cGy of radiation. Two years later, he complained of left eyelid drooping and diagnosed as myasthenia gravis with tensilon test. His myasthenic eye symptom was controlled with Mestinon. After 9 years from thymectomy, he complained of dizziness and dyspnea on exertion. Bone marrow smear revealed megaloblastic anemia and serum vitamin B12 level was 42.24pg/ml. Gastric juice analysis revealed achlorhydria with positive anti-intrinsic factor antibody. 6 weeks after treatment with parenteral vitamin B12, hematologic findings were normalized.

Key Words : Invasive thymoma, Myasthenia gravis, Pernicious anemia

REFERENCES

- 1) Biermer A: *Über eine form von progressiver perniciouser anamic. Correspondenzbl Schweiz Ärzte* 2:15, 1872
- 2) Irvine WJ: *Immunologic aspect of pernicious anemia. N Eng J Med* 273:432, 1965
- 3) Rosenberg JC: *Neoplasms of the mediastinum. In: Devita VT Jr, Hellman S, Rosenberg SA, eds. Cancer. Principles and practise of oncology. 4th ed. p759, Philadelphia, JB Lippincott Co, 1993*
- 4) , : 1 . 9:59, 1966
- 5) Castle WB, Fox HJ: *Observation on the etiologic relationship of achylia gastrica to pernicious anemia. Am J Med Sci* 178:748, 1929
- 6) Meulengracht E: *Histologic investigation into the pyloric gland organ in pernicious anemia. Am J Med Sci* 197:201, 1939
- 7) Taylor KB: *Immune phenomena in pernicious anemia. Gastroenterology* 45:670, 1963
- 8) Souadjian JV, Enriquez P, Silverstein MN, Pepin JM : *The spectrum of disease associated with thymoma. Arch Intern Med* 134:374, 1974
- 9) Soppi E, Eskola J, Roytta M, Veromaa T, Panelius M,

= Abstract =

A Case of Pernicious Anemia and Myasthenia Gravis after Thymectomy and Irradiation of an Invasive Thymoma

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- Lehtonen A: *Thymoma with immunodeficiency (good's syndrome) associated with myasthenia gravis and benign IgG gammopathy*. *Arch Intern Med* 145:1704, 1985
- 10) Renneberg RJ, Pauwels P, Vlasveld LT: *A case of thymoma-associated autoimmune haemolytic anaemia*. *Neth J Med* 50:110, 1997
- 11) Postiglione K, Ferris R, Jaffe JP, Stroncek D: *Immune mediated agranulocytosis and anemia associated with thymoma*. *Am J Hematol* 49:336, 1995
- 12) Kobayashi H, Kitano K, Ishida F, Saito H, Miyabayashi H, Yonezawa T, Inada H, Suzuki A, Furuta S: *Aplastic anemia and idiopathic thrombocytopenic purpura with antibody to platelet glycoprotein IIB/IIIA following resection of malignant thymoma*. *Acta Haematol* 90:42, 1993
- 13) Antony AC: *Myeloblastic anemias*. In: Hoffman R, Benz EJ Jr, Shattil SJ, Furie B, Cohen HJ, eds. *Hematology. Basic principles and practise*. p392, New York, Churchill Livingstone Inc, 1991
- 14) Bardhan KD, Hall JR, Spray GH, Callender ST: *Blocking and binding autoantibody to intrinsic factor*. *Lancet* 1:62, 1968
- 15) Garrido-Pinson G, Turner MD, Crockston JH, Samloff IM, Miller LL, Segahl SO: *Studies of human intrinsic factor autoantibodies*. *J Immunol* 97:897, 1966
- 16) Karlsson FA, Burman P, Loof L, Mardh S: *Major parietal cell antigen in autoimmune gastritis with pernicious anemia is the acid-producing H⁺, K⁺-adenosine triphosphatase of the stomach*. *J Clin Invest* 81:475, 1988
- 17) Burman P, Mardh S, Norberg L, Karlsson FA : *Parietal cell antibodies in pernicious anemia inhibit H⁺, K⁺-adenosine triphosphatase, the proton pump of the stomach*. *Gastroenterology* 96:1434, 1989
- 18) , , , : 1 .
14:97, 1995
- 19) , , , , , , : 가 1 .
30:315, 1995
- 20) , , , , , , :
52:570, 1997