Epidemiology

In the United States, testis cancer is the most common malignancy among men 20 to 40 years old and the second most common cancer after leukemia among adolescent boys and young men 15 to 19 years old

Testis tumors have three age peaks: infancy, age 30 to 34 years, and approximately age 60. The incidence of bilateral GCT is approximately 2.5%

The incidence of testis cancer in the United States in non-Hispanic whites is five times higher than the incidence in blacks, four times higher than the incidence in Asians, and 78% higher than in Hispanics

The incidence of GCT appears to be increasing worldwide. In the United States, the age-adjusted incidence rate for adolescent boys and men 15 to 49 years old increased from 2.9 per 100,000 in 1975 to 5.1 per 100,000 in 2004

Risk Factors

There are four well-established risk factors for testis cancer:

cryptorchidism,

family history of testis cancer,

a personal history of testis cancer,

and intratubular germ cell neoplasia (ITGCN).

Infertile men also have a higher incidence of testis cancer.

Men with cryptorchidism are four to six times more likely to have testis cancer diagnosed in the affected gonad, but the rela-tive risk decreases to two to three times more likely if orchidopexy is performed before puberty

A man's relative risk for testis cancer is 8 to 12 with an affected brother compared with 2 to 4 in men with an affected father

Men with a history of testis cancer have a 12-fold increased risk of developing GCT in the contralateral testis,

Precursor lesions—intratubular malignant germ cells (carcinoma in situ)

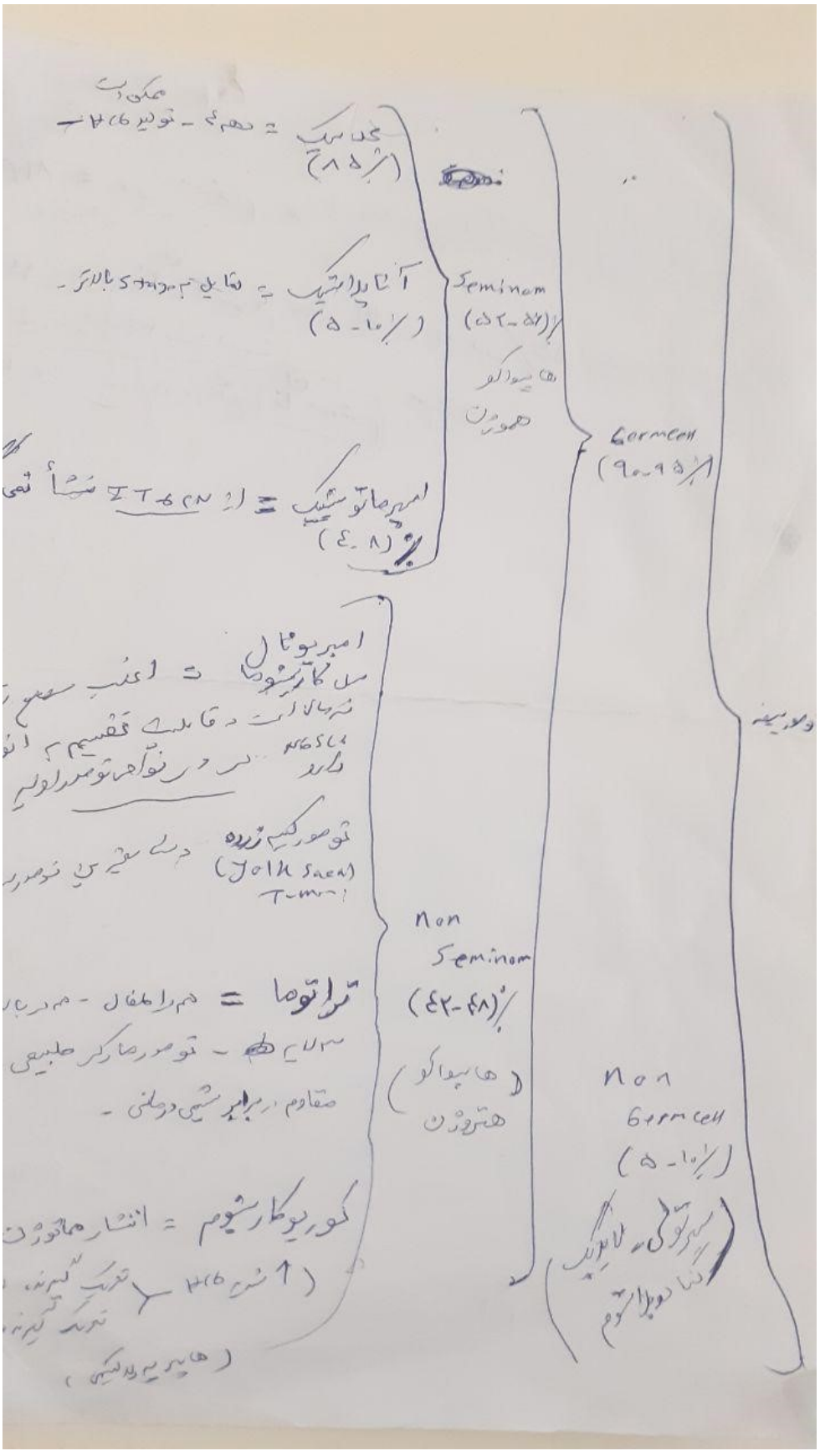
-Most GCTs arise from a precursor lesion,

- ITGCN (which is also referred to as carcinoma in situ).

-ITGCN is present in adja-cent testicular parenchyma in 80% to 90% of cases of invasive GCT and is associated with a 50% risk of GCT within 5 years and 70% within 7 years .

-Of patients with GCT, 5% to 9% have ITGCN within the unaffected contralateral testis,

-although the incidence of contralateral ITGCN increases to about 36% in men with testicular atrophy or cryptorchidism


Seminom
(52-57)٪
Germcell
(90-95٪)
Non
Seminom
(43-48)٪
Non
Germcell
(5-10٪)

•GCT is the most common solid malignancy among men 20 to 40 years old.

•Bilateral GCT occurs in 2% of men. .

•The incidence of GCT is highest in whites and lowest in African-Americans.

•Cryptorchidism, personal or family history of GCT, and ITGCN are known risk factors for GCT.

•Orchidopexy for cryptorchidism performed before puberty is associated with a decreased risk of GCT.

•Approximately 70% of GCTs have an extra copy of chro-mosome 12 or i(12p), and this genetic marker may be used in the histopathologic diagnosis of GCT and non-GCT somatic malignancy arising from malignant transformation of teratoma.

•Approximately 5% of GCTs originate at extragonadal sites, most commonly mediastinum and retroperitoneum. Primary mediastinal NSGCTs are associated with a poor prognosis.

•Teratoma is histologically benign. Teratoma at metastatic sites arises from differentiation of metastatic embryonal carcinoma.

•Teratoma is resistant to chemotherapy.

•Teratoma is histologically benign but genetically unstable. It has unpredictable biology. Although uncommon, teratoma has the capacity to grow rapidly or undergo malignant transformation of ectodermal, mesodermal, or endodermal elements to form a non-GCT somatic malignancy

Signs and Symptoms

The most common presentation of testis cancer is a painless testis mass

Acute testicular pain is less common and is caused by rapid expansion of the testis secondary to intratumor hemorrhage or infarction caused by rapid tumor growth

Regional or distant metastasis at diagnosis is present in approximately one third of cases of NSGCT and 15% of cases of pure seminoma,

Bulky retroperitoneal metastasis may cause a palpable mass, abdominal pain, flank pain secondary to ureteral obstruction, back pain owing to involvement of the psoas muscle or nerve roots, lower extremity swelling secondary to compression of the inferior vena cava, or gastrointestinal symptoms. Pulmonary metastasis may manifest with dyspnea, chest pain, cough, or hemoptysi

Metastasis to supraclavicular lymph nodes may manifest as a neck mass

Approximately 2% of men have gynecomastia,resulting from elevated serum hCG levels, decreased androgen production, or increased estrogen levels (most commonly seen in men with Leydig cell tumors).

Physical Examination

The physician should carefully examine the affected and the normal contralateral testis,

noting their relative size and consistency and palpating for any testicular or extratesticular masses.

Atrophy of the affected or contralateral testis is common, particularly in patients with a history of cryptorchidism.

Any firm area within the testis should be considered suspicious for malignancy and should prompt further investigations.

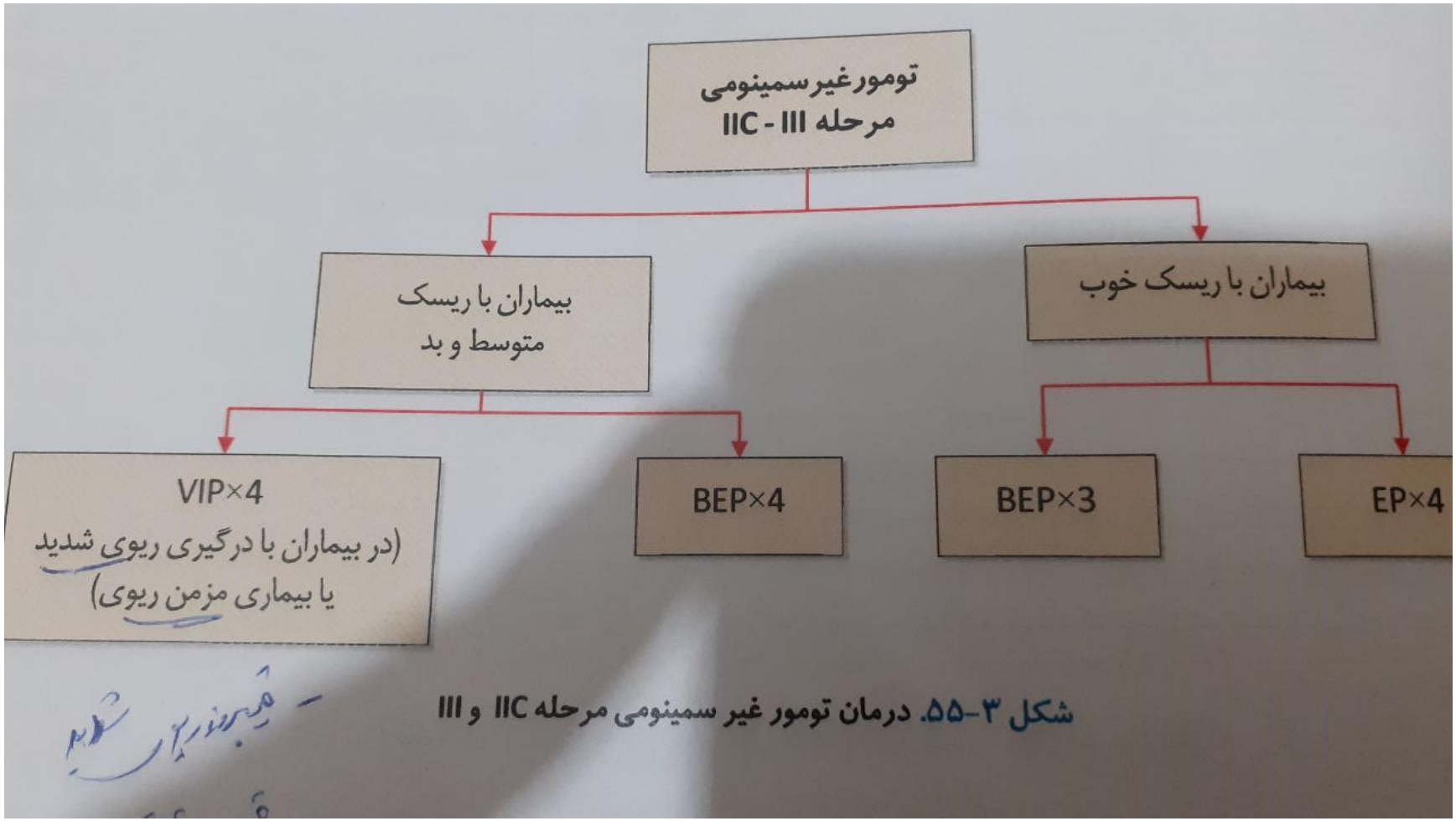
A hydrocele may accompany a testis cancer and impair the examiner's ability to evaluate the testis. In this case, a scrotal ultrasound scan to evaluate the testis is warranted.

The patient also should be examined for any evidence of palpable abdominal mass or pain, inguinal lymphadenopathy (particularly if he has had prior inguinal or scrotal surgery),

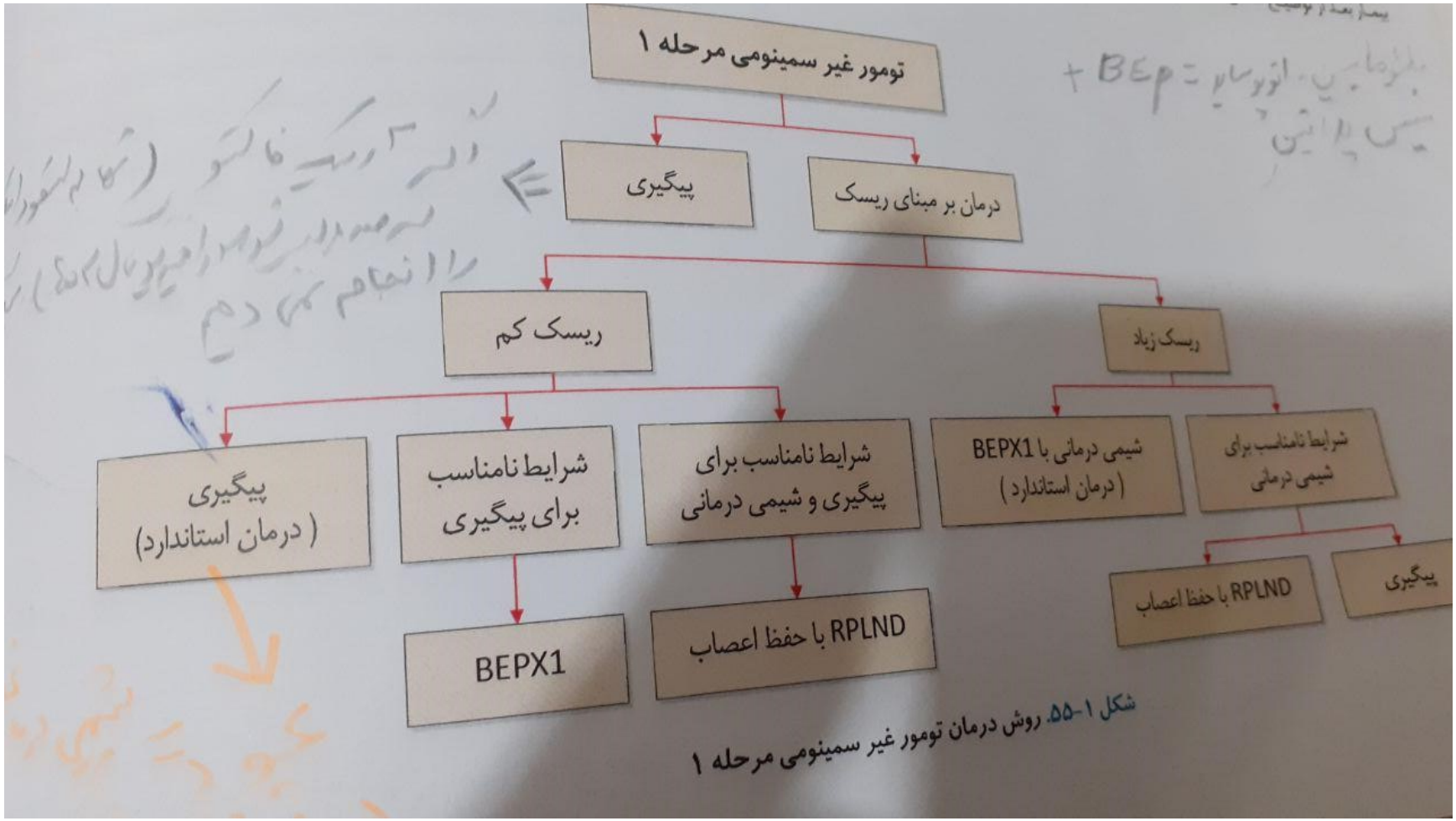
gynecomastia,

and supraclavicular lymphadenopathy.

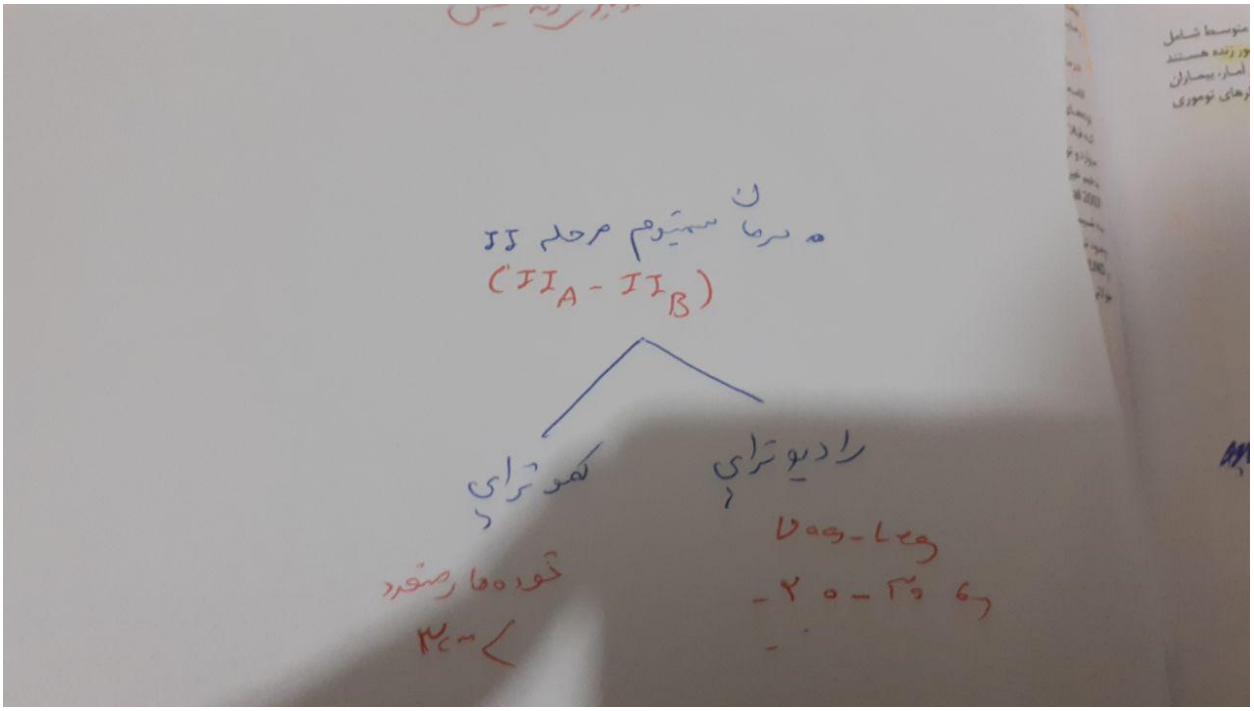
Auscultation of the chest for intrathoracic disease should be done

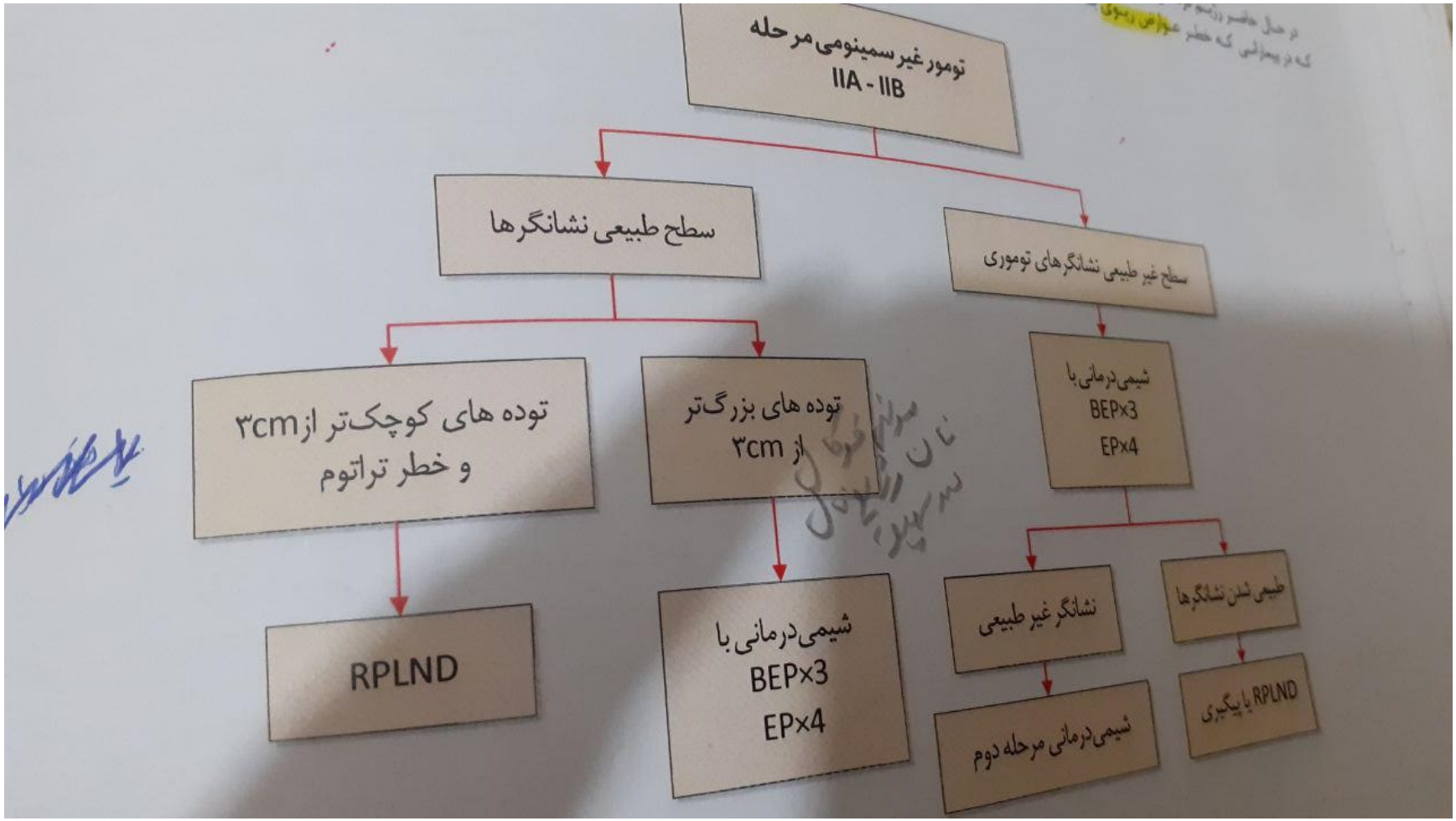


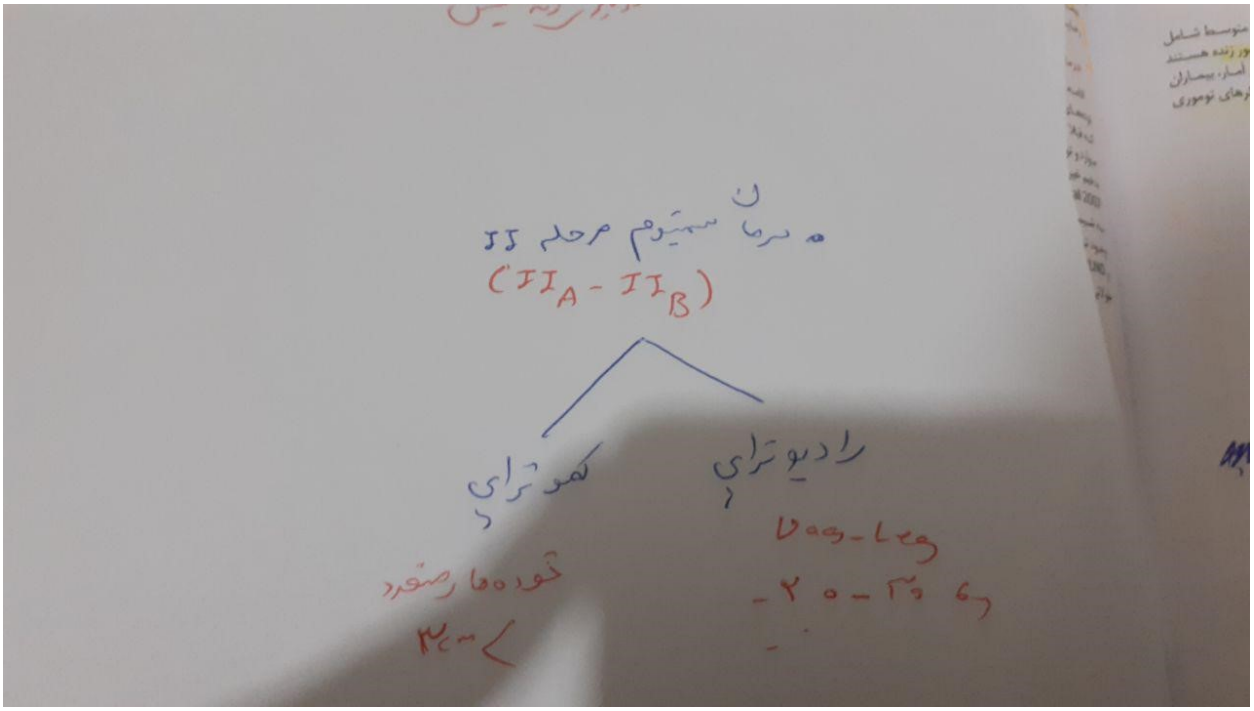
شکل ۳-۵۵. درمان تومور غیر سمینومی مرحله IIC و III

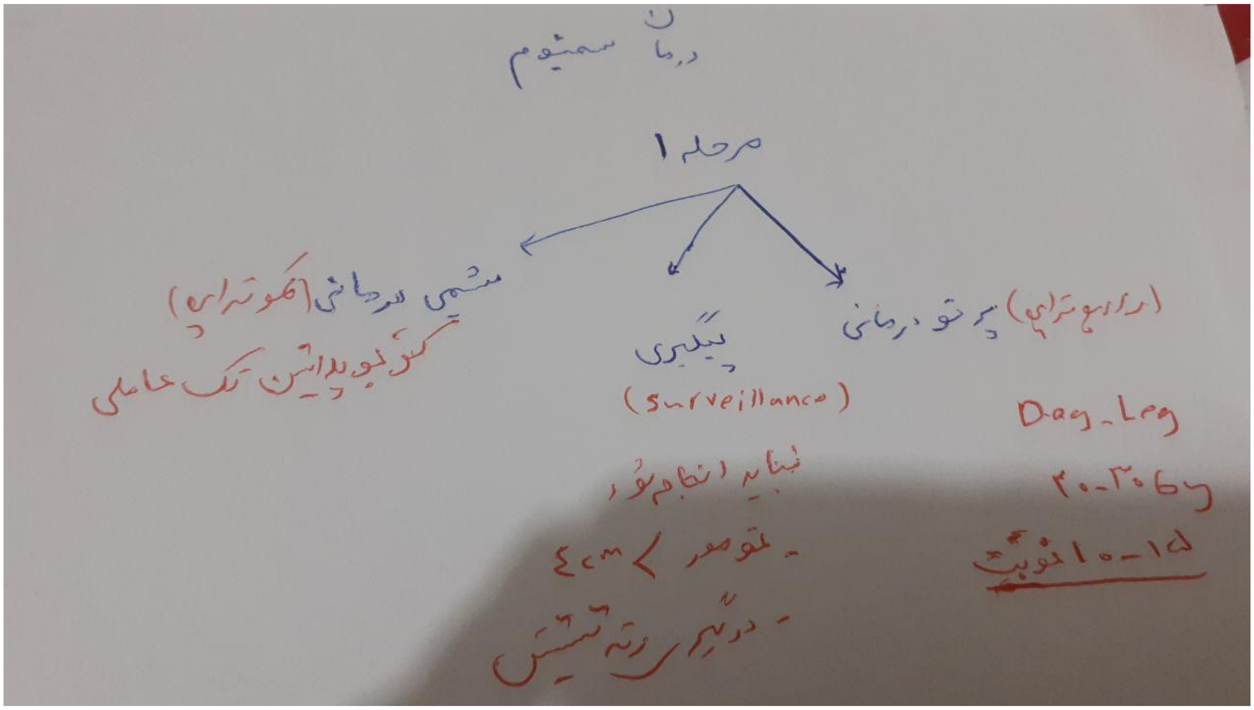


شکل ۱-۵۵. روش درمان تومور غیر سمینومی مرحله ۱


درمان سیستوم مرحله IIA
(IIA - IIB)
رادیوتراپی
کموتراپی


تومور غیر سمینومی مرحله
IIA - IIB
سطح طبیعی نشانگرها
سطح غیر طبیعی نشانگرهای توموری
توده های کوچک‌تر از ۳cm
و خطر تراتوم
توده های بزرگ‌تر
از ۳cm
شیمی‌درمانی با
BEP×3
EP×4
RPLND
شیمی‌درمانی با
BEP×3
EP×4
نشانگر غیر طبیعی
طبیعی شدن نشانگرها
شیمی‌درمانی مرحله دوم
RPLND با پیگیری


درمان سیستمیک مرحله IIA
(IIA - IIB)
رادیوتراپی
کموتراپی


درمان سمینوم
مرحله ۱
شیمی درمانی (کموتراپی)
کربوپلاتین تک عاملی
پیگیری
(surveillance)
نباید انجام شود
- تومور > 4cm
- درگیری رته تستیس
پرتو درمانی (رادیوتراپی)
Dog-Leg
20-30Gy
10-15 نوبت