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# EHA-ROHS-NHS Tutorial on "Real world challenges and opportunities in diagnostics and management of onco- hematological patients today"

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## Female, born 1991 (25 years)

- **Complaining of** : March, 2016 – shortness of breath, chest pain, fever, excessive sweating.
- Self-medication for 1 month
- Early April, 2016 – symptoms worsened, shortness of breath abruptly increased.
- **Chest CT 05.04.2016 (made independently, not consulting GP)**: enlarged lymph nodes: left supraclavicular up to 1.6 cm, axillar on both sides up to 1.5 cm, at the roots of lungs – up to 2.7 cm; mediastinal mass 5 × 9 cm, focal lesions in upper lobe of left lung up to 1.5 cm. Left-sided hydrothorax. Hepatomegaly.
- **Consulted in Rostov Cancer Research Institute.**



## Female, born 1991

- **13.04.2016** urgently hospitalized to thoracic department with increasing superior vena cava syndrome.
- **13-18.04.2016** due to life threatening condition the patient received: vinblastine 10 mg, doxorubicin 70 mg, methylprednisolone 90 mg by 5. Symptoms decreased.
- **26.04.2016** thoracoscopic biopsy of the mediastinal tumor
- **Histology before immunohistochemistry:** lymphoproliferative disease, not specified
- Patient was discharged.



## Female, born 1991

- Patient refused to continue treatment in Rostov and moved to Israel.
- In Israel after immunohistochemistry the diagnosis was established: classical Hodgkin lymphoma, nodular sclerosis (NS I).
- **05.2016 PET/CT:** pathologic uptake in supraclavicular nodes (1.6 cm), axillar nodes (1.5 cm), in the mediastinal mass 5 × 9 cm (bulky), at the roots of lungs (2.7 cm), upper lobe of left lung (1.5 cm). Bilateral pleuritis.
- **Disease stage:** IVB, prognostic group – “advanced stages”



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**Female, born 1991**

**Disease stage: IVB**

**First line treatment: ABVD (treatment in Israel):**

- First 2 cycles (05.2016 – 07.2016).
  - **PET-2 (07.2016): complete metabolic response**



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**Female, born 1991**

**Disease stage: IVB**

**First line treatment: ABVD (treatment in Israel):**

- First 2 cycles (05.2016 – 07.2016).
  - **PET-2 (07.2016): complete metabolic response**
- Overall 6 cycles of ABVD (05.2016 – 11.2016).
  - **PET-6 (11.2016): new metabolically active lymph nodes in left axillar region (1.4 cm), in the root of the right lung (1.2 cm). **Conclusion:** progressive HL suspected.**



**Female, born 1991**

- **11.2016 First consultation in N.N. Blokhin National Medical Research Center of Oncology**
- **12.2016 biopsy of left axillar lymph node. Histology + IHC: classical Hodgkin lymphoma, nodular sclerosis I.**
- Patient **refused** treatment and insisted upon ovarian cryopreservation
- **01.2017. 2 unsuccessful attempts at cryopreservation**



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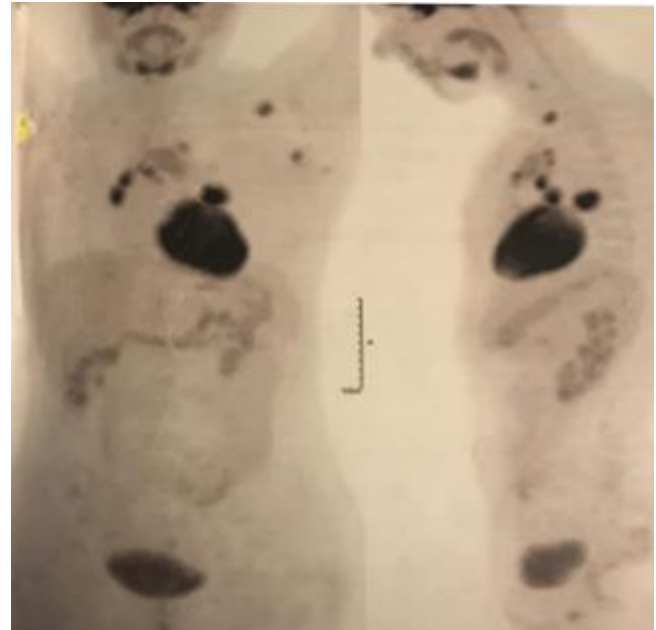


**Female, born 1991**

– **PET (02.2017):**

**Negative** dynamics:  
increase of number and  
size of metabolically active  
right axillar and mediastinal  
lymph nodes.

**Conclusion**, in 26-year old  
patient – refractory  
classical Hodgkin  
lymphoma







## Female, born 1991

- **02.2017** progressive cHL, stage at progression – II A
- Planning treatment strategy: «salvage» therapy following by autologous stem cell transplant (AutoSCT).
- 13.03.2017 - 07.04.2017: **«Salvage» therapy:**  
**2 cycles of brentuximab vedotin (1.8 mg/kg) + DHAP**
- **PET (05.2017):** single active lymph node in the aortopulmonary window (1.3 cm), paravascular lymph nodes <1 cm – metabolically inactive, axillary lymph nodes not enlarged – **PR, PET+**



**Female, born 1991**

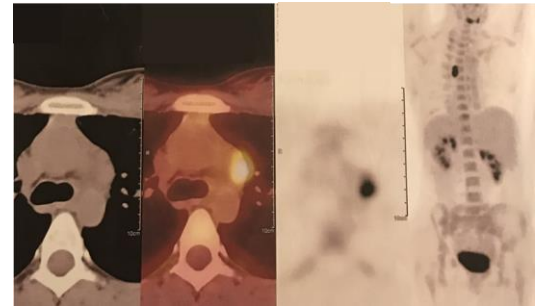
- **Bone marrow collection and apheresis (23.05-25.05.2017)**: enough stem cells for 2 cycles of high dose chemotherapy (HD CT)
- **Conditioning BEAM 12.06-18.06.2017**: overall bendamustine 400 mg/m<sup>2</sup>, etoposide 600 mg/m<sup>2</sup>, cytarabine 160 mg/m<sup>2</sup>, melphalan 140 mg/m<sup>2</sup>
- **AutoSCT (19.06.2017)**: infused  $5.7 \times 10^8$ /kg
- **Day +25** steady blood recovery, discharge



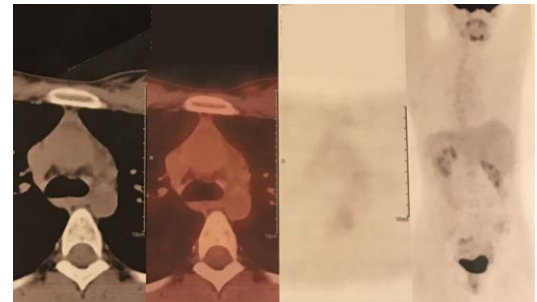
## Female, born 1991

- PET after HD CT (08.2017)  
Complete metabolic response (DS1).
- Overall response: CR, PET-
- The patient has 2 risk factors before HD CT:
  - Primary refractory course
  - Partial PET+ remission before high dose treatment

Before HD CT



After HD CT

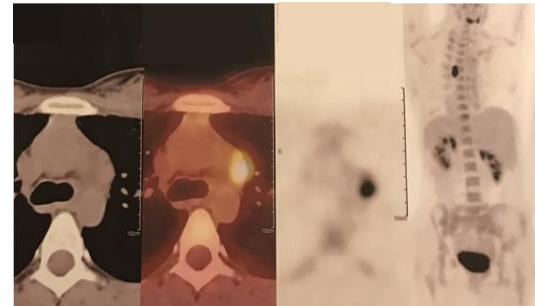




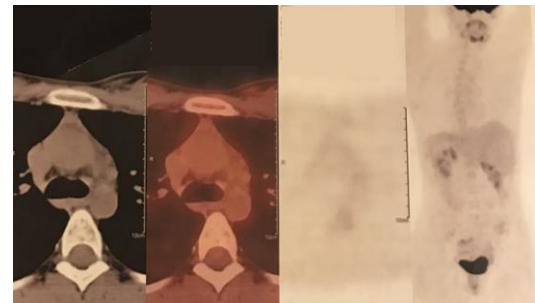
## Female, born 1991

- **PET after HD CT (08.2017)**  
Complete metabolic response (DS1).
- **Overall response: CR, PET-**
- **Consolidation: BV 1.8 mg/kg**  
(09.2017 – 11.2017) – 4  
injections
- **Control workup (02.2018):**  
patient remains in complete  
remission

### Before HD CT



### After HD CT





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## Female, born 1991

- **03.2018 Pregnancy 8 weeks!!!**
- Gynecological workup: pregnancy develops normally
- **Control workup 19.04.2018: no signs of progression**
- **16.09.2018 gave birth to a healthy girl, weight 3600 g**



## Female, born 1991

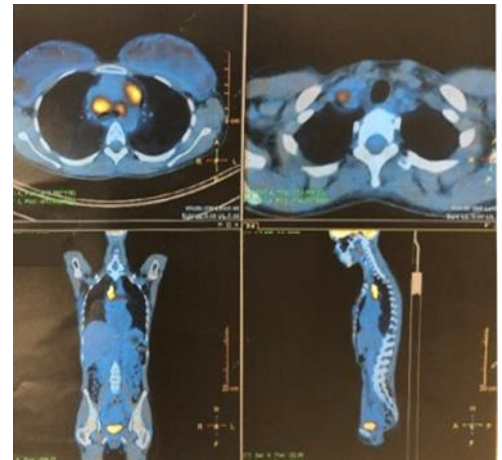
- **Chest CT (09.10.2018)**: single enlarged lymph nodes appeared in mediastinum: on the left from the ascending aorta – lymph node  $3.4 \times 2.7$  cm, 2 cm in length; conglomerate of upper paratracheal lymph nodes  $2.7 \times 2.2$  cm, 5 cm in length; bifurcation lymph node  $1.9 \times 0.7$  cm.



## Female, born 1991

- **PET/CT (19.10.2018):** altered lymph nodes with hyperfixation of the radiopharmaceutical ( $^{18}\text{F}$ FDG):
  - Right supraclavicular up to 11 mm
  - Thoracic, the largest conglomerate in paratracheal region 22 × 27 mm

**Conclusion:** PET/CT picture of hypermetabolic lymphoproliferative disease involving peripheral and mediastinal lymph nodes.



**Second relapse is diagnosed**



## Female, born 1991

- November – December 2018: 3 injections of nivolumab 240 mg i.v.
- Chest CT (09.01.2019): comparing to previous chest CT (09.10.2018): mediastinal lymph nodes decreased:
  - on the left from the ascending aorta – from  $3.4 \times 2.7$  cm down to  $3.1 \times 1.7$  cm
  - Conglomerate of upper paratracheal lymph nodes – from  $2.7 \times 2.2$  cm down to  $1.4 \times 1.0$  cm
  - Bifurcation lymph node – from  $1.9 \times 0.7$  cm to  $1.3 \times 0.6$  cm.
- Conclusion: positive dynamics in thorax comparing with 09.10.2018
- The treatment with nivolumab is ongoing, patient tolerating it well