# Plasminogen Deficiency, Type 1: For Obstetrics/Gynecology



# **Overview of Plasminogen Deficiency (PLGD)**

- PLGD Type 1: a quantitative protein deficiency, with decreased plasminogen activity and decreased antigen
  - Due to a genetic mutation in the gene for plasminogen; > 50 different mutations have been identified; Autosomal Recessive inheritance
  - Most common presenting symptom is ligneous conjunctivitis, but multi-organ, systemic disease that can be life-threatening
- PLGD Type 2: reduced functional activity of plasminogen, but normal antigen levels; patients are asymptomatic

	Normal	PLGD Type 1	PLGD Type 2
Plasminogen Activity	70-130%	Decreased	Decreased
Plasminogen Antigen	6-25 mg/dL	Decreased	Normal
For Patients: My Plasminogen Activity			

## **Diagnosis**

- Complicated by heterogeneous symptoms; symptoms can wax and wane
- Mucosal surfaces of the eyes, ears, nose, gums, airways, lungs, GI tract, kidneys, GU tract, CNS, and skin can all be affected
- Initial point of medical contact therefore includes many disciplines

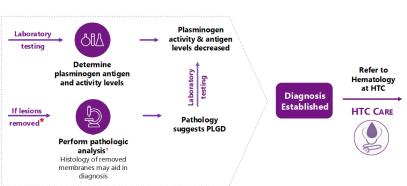
#### **Treatment**

- Ryplazim (plasminogen, human-tvmh) given by IV infusion leads to resolution of lesions
- Surgical removal of lesions, though initially helpful, leads to accelerated regrowth
- Referral to a Hemophilia Treatment Center (HTC) to serve as medical home, and:
  - Educate on product use
  - Ongoing symptom monitoring, outcomes, safety
  - Administer doses, determine dosing schedule
  - Teach home infusion

#### Patient presents with possible ligneous lesions



#### Establish Diagnosis



#### Participate in Research to advance knowledge & care



### **Obtain Genetic Testing**

 Homozygous or double heterozygous
 Multiple genetic variants of the plasminogen gene lead to type 1 deficiency Additional Care
Through HTC



- Review patient & family history
- Evaluate all siblings: Asymptomatic siblings require preemptive care
- Perform complete review of systems
- Utilize multidisciplinary team to support patient/family including genetic counseling



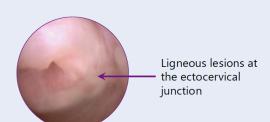
- Perform complete physical examination
- Document visually-identified lesions; evaluate systems/sequelae where lesions are suspected
- · Determine need for therapy
- Consent for ATHN data systems
- Collect and add data to address unanswered questions
- Follow affected individuals on scheduled ongoing basis
- Monitor response to therapy

<sup>\*</sup>Lesion removal prior to diagnosis not recommended

## **Obstetrics / Gynecology Specific Diagnostic Findings**

## **INITIAL PRESENTATION**

- Vaginal, cervical, endometrial, fallopian tube, ovarian ligneous lesions
- ♦ Vaginal passage of fibrous tissue
- ♦ Premenarchal vaginal bleeding
- ♦ Dysmenorrhea, menorrhagia
- Dyspareunia



Courtesy of Dr. Lesley L. Breech, Cincinnati Children's Hospital

## **ADVANCED DISEASE**

- Vaginal, cervical, endometrial, fallopian tube, ovarian ligneous lesions
- → Vaginal passage of fibrous tissue
- ♦ Dysmenorrhea, menorrhagia
- ◆ Dyspareunia
- Obstructed fallopian tubes
- Ovarian fibrosis
- Infertility



Baithun et al. 2018, Ref 4, Used with permission

# **Obstetrics / Gynecology Specific Treatment Considerations**

- New or suspected diagnosis:
  - o Obtain diagnostic blood test (plasminogen activity level) or refer to hematologist to order
  - If confirmed, refer to HTC to establish care and perform thorough review of systems
    - Patients may have more than one system affected at presentation or occurring over time
- Confirmed diagnosis:
  - Coordinate clinical care and collaborate closely with existing care team at HTC
  - o Manage procedures, pregnancies, and surgeries in close collaboration with HTC
- Be suspicious of common diagnoses:
- Dysmenorrhea and irregular abnormal menses might be due to ligneous lesions
- Persistent vaginal discharge or passage of vaginal tissue may be a premenarchal symptom of PLGD
- In patients with type 1 plasminogen deficiency, GU complications can occur
  - o Vaginal, cervical, uterine, tubal, and ovarian lesions
  - Abnormal fallopian tube morphology
  - o Ovarian disease
- Approximately 27% of females of childbearing age with PLGD are diagnosed with infertility
- Pregnancy in PLGD patients should be considered high risk

## **Learn More:**







