the patient's compressive symptoms. Cytology showed inflammatory cells (mostly neutrophils) and numerous bacteria. The patient was emergently taken to the operating room for neck exploration, hemithyroidectomy, and incision/drainage of a suspected thyroid abscess. A drain was placed and removed POD 2 after minimal output.
The patient was discharged on oral antibiotics. 1-week post-operatively, the patient returned to the ED due to reaccumulation of the abscess. This was successfully treated with IR placement of a drain. The drain was removed 2-weeks post-operatively, and the patient is doing well.
Conclusion: Thyroid abscesses are rare but possible in young and immune-competent patients. While the imaging findings can point towards a more common diagnosis, such as thyroid carcinoma, avoiding anchoring bias is important. Imaging data should be considered in the context of the clinical picture to avoid the possibility of misdiagnosis.

Pediatric Endocrinology

PEDIATRIC SEXUAL DIFFERENTIATION, PUBERTY, AND BONE BIOLOGY

Mice Lacking Paternally Expressed DLK1 Reach Puberty at a Lower Body Weight Than Littermate Controls

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SUN-100
Body fat content along with a variety of genetic, environmental and psychosocial factors are responsible for the development and maintenance of reproductive function, especially in females. Epidemiologic studies indicate a relationship between increased body mass index and earlier puberty in girls. In contrast, a significant delay in puberty and menarche is seen in girls who are very physically active and have markedly diminished body fat. This link between reproduction and metabolism was reinforced with the recent report of loss-of-function mutations in the *Delta-like homolog 1* (*DLK1*) gene in girls with central precocious puberty (CPP) and increased body fat. *DLK1* is a paternally expressed gene located on chromosome 14q32.2 in a locus associated with Temple syndrome (TS), an imprinting disorder caused mainly by maternal parental disomy (mUPD). *Dlk1* knockout mice display pre- and postnatal growth retardation, a phenotype that overlaps with human mUPD14. However, precocious puberty, a common finding associated with TS, was not carefully characterized in these mice. We used a *Dlk1* deficient mouse model to determine the effects of Dlk1 on pubertal maturation. We confirmed by RT-qPCR that *Dlk1* mRNA was undetectable in the mediobasal hypothalamus, where kisspeptin and other regulators of puberty are expressed, of $Dlk^{+/p-}$ mice (which inherited the mutant allele from their father) whereas it was present in $Dlk^{+/+}$ mice. As reported previously, body weight was significantly lower in juvenile male and female $Dlk^{+/p-}$ mice, compared to wild-type littermate controls. Interestingly, mutant and control female mice achieved vaginal opening, a marker of puberty onset, at a similar age ($Dlk^{+/p-}$: 29.8 ± 1.5 days, n=11 *vs.* $Dlk^{+/+}$: 29.1 ± 0.7 days, n=15, p=0.6) despite a considerably lower body weight in the *Dlk1* deficient mice at the time of vaginal opening ($Dlk^{+/p-}$: 10.1 ± 0.8 g *vs.* $Dlk^{+/+}$: 14.3 ± 0.3 g, p<0.0001). Similarly, in the $Dlk^{+/p-}$ males, preputial separation occurred at a lower body weight than in controls ($Dlk^{+/p-}$: 12.4 ± 0.3 g, n=9 *vs.* $Dlk^{+/+}$: 14.1 ± 0.2 g, n=19, p<0.0001). We hypothesize that the lack of *Dlk1* at the hypothalamic level may be attenuating the effect of the low body weight on determining pubertal onset. These findings suggest that DLK1 is an important link between body weight and pubertal development in mice, as has been shown in humans.

Steroid Hormones and Receptors

STEROID AND NUCLEAR RECEPTORS

Roles of Progesterone Receptor Isoform B in Non-Small Cell Lung Cancer Tumor Progression

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SUN-742
Lung cancer is a leading cause of cancer mortality worldwide. Premenopausal women often has worse survival with advanced stages of the disease compared to postmenopausal women, suggesting an involvement of sex steroids and their receptors in the progression of non-small cell lung cancer (NSCLC). Progesterone receptor (PR) was reported to be involved in an inhibition of NSCLC cell proliferation and correlated with better clinical outcome. In addition, PRB suppressed epidermal growth factor (EGF)-induced NSCLC cell proliferation and activation of ERK1/2, in the absence of progestin. However, clinical and biological significance of PRB in NSCLC patients has remained virtually unknown. Therefore, we performed immunohistochemistry using monoclonal antibody specific to the N-terminus of PRB (250H11 mAb) and 1294mAb which could detect both PRA and PRB in 124 NSCLC cases: 94 adenocarcinoma and 30 squamous cell carcinoma (SCC). Overall survival (OS) was analyzed using the Kaplan-Meier plotter (KM plotter) database, examining the correlation between the status of PRs and survival rate of the patients.
19 cases were immunohistochemically positive for PRB and 23 PRA/B positive NSCLC cases, and all of four cases harboring abundant PRs were also positive for PRB. Therefore, PRB positivity was considered to be significantly correlated with the whole PR (<0.01). Of particular interest, the abundance of PR or PRB was significantly correlated with lower tumor size in total NSCLC (p=0.0395) and SCC (p=0.023), and tended to be correlated with pleural invasion in adenocarcinoma cases (p=0.051). In addition, PRB positive cases tend to have lower tumor size than those

positive with PRA/B. The analysis using KM plotter also revealed that PR was a good prognostic factor in total NSCLC patients.
Our data demonstrated that not only PR but also PRB could be a good prognostic factor and have an important role on tumor progressing in NSCLC patients. In order to further elucidate the molecular mechanisms of PRB signaling in NSCLC, we are now performing further *in vitro* studies. Results of our present study could contribute to the development of novel therapeutic strategies targeting PR and/or PRB in NSCLC patients.

Tumor Biology

ENDOCRINE NEOPLASIA CASE REPORTS II

I'm Not Crazy! I Get a Headache When I Pee: A Case of Metastatic Bladder Paraganglioma

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MON-910

Tumors of chromaffin cells derived from the embryonic neural crest are classified as pheochromocytomas when located in the medulla of the adrenal glands and paragangliomas when located externally to it. Bladder paragangliomas constitute less than 1% of all catecholamine-secreting neuroendocrine tumors. Usually, these tumors are functional and symptomatic, but in other cases, they can be silent. We present an interesting case of a patient with post-micturition catecholaminergic crises that went undiagnosed for several years until found to have a bladder paraganglioma.
A 60-year-old male with a past medical history of TIA, HTN, CAD, and ischemic cardiomyopathy presented with post-micturition headaches since age 14. Despite work up, no etiology was found. Eventually, the patient was referred to mental health for what was thought to be somatic symptoms. In 2010, he was diagnosed with hypertension and started keeping daily blood pressure (BP) logs, which showed BP fluctuation as high as 260s/110s with high-volume micturition, yet normotensive at other times. This led to imaging and cystoscopy which revealed a 6-cm bladder lesion. Surgical resection was completed, and pathology showed paraganglioma with positive margins and lymphovascular invasion. He was lost to follow up until 2017 when he presented with hypertensive crisis. CT and octreotide scan showed numerous osseous lytic lesions concerning for metastases. Laboratory testing confirmed excess catecholamines. He was referred to oncology, and after consideration of several treatment options, the patient was started on Xgeva and Sandostatin LAR. However, he passed away shortly thereafter.
Bladder paragangliomas are very rare and account for 6% of extra-adrenal pheochromocytomas. They occur more frequently in women than in men and clinically present mainly during the third decade of life. The patient typically suffers from hypertensive crises that may be accompanied by headache, palpitations, hot flushes, and sweating. These crises are mainly provoked by micturition, overdistention of the bladder, defecation, sexual activity, ejaculation, or bladder instrumentation. If there is high suspicion, biochemical and functional imaging workup should be performed. Surgery is the mainstay of the treatment and requires total excision. If diagnosed preoperatively, a partial cystectomy is preferred over trans-urethral resection as the majority of these tumors extend in the deep layers of the detrusor muscle. Because they are likely to recur and to metastasize, annual follow up with a measurement of plasma and urinary catecholamine levels and cystoscopy are essential. A functional imaging study (Ga-DOTATE scan) should be done to locate recurrence if symptoms reappear or catecholamine resurgence occurs.

Neuroendocrinology and Pituitary

HYPOTHALAMIC-PITUITARY DEVELOPMENT AND FUNCTION

Pituitary Hormonal Levels and Gonadal Histology in the Pubertal Period of the Ames Mice

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SAT-297

Introduction: The pituitary gland controls several mechanisms as metabolism, growth, and reproduction, in response to hypothalamic stimuli. The adequate temporal/spatial expression of transcription factors is mandatory for a normal pituitary development. PROP1 transcription factor is widely known as a key pituitary regulator. The Ames mice is a model of congenital hypopituitarism due to a pathogenic variant in the *Prop1* gene, leading to growth retardation, infertility, and hypothyroidism. **Aim:** To characterize the peripheral levels of pituitary hormones and correlate with gonadal histology during the pubertal period of the Ames mice. **Methods:** Weight and naso-anal length were measured. Peripheral blood samples were collected from 5 wild type (WT) and 5 *Prop1* mutants (Mut) animals with 30 (P30), 40, (P40), and 60 (P60) days after birth. Pituitary hormone levels were measured using the kit Milliplex Map® - Mouse Pituitary Bead Panel (Merck Millipore, Massachusetts, USA). Ovaries and testis from 3 WT and 3 Mut animals from each sex were collected and fixed in 4% paraformaldehyde and embedded in paraffin. Gonadal sections of 3 µm were obtained and the slices were stained with hematoxylin and eosin. Follicles were counted and classified according to the size and cellular composition as small follicle (17µm to 28µm), developing follicle (100µm), and antral follicle (>550µm). Testis were classified using the Johnsen score, ranging from 1 to 10 according to cellular composition and spermatogenesis state. **Results:** All mutant mice presented decreased weight and naso-anal length at the three analyzed periods. At P30, the female mutants presented GH, LH, and TSH levels similar to wild type and decreased FSH and PRL levels, as well as the males that only differed from GH reduced levels. At P40,