Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Immunohistochemistry	Prostate	Non-prostate
NKX3.1	12/12	0/5
PSA	14/17	0/9
PSMA	16/19	0/6
Cytokeratin 7	0/5	4/5
Cytokeratin 20	1/3	4/5
TTF-1	0/11	6/10

Table 1: Summary of most commonly performed IHC

PST065

Fluorescent In-Situ Hybridization Test Performed on Cell Blocks is Useful for Establishing Germ Cell Origin of Metastatic Tumors with Unusual Clinical Presentation

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Introduction: Metastatic/extra-gonadal germ cell tumors (GCTs) can be primarily diagnosed by FNA. Majority of the GCTs are characterized by abnormalities of chromosome 12 like iso-chromosome 12p (i12p). The aim of this study is to review the cytomorphology and analyze the utility of i12p FISH test in diagnosing metastatic GCTs primarily diagnosed by cytology in patients without prior history of GCTs.

Materials and Methods: Laboratory information system was queried over a period of 10 years for cases where i12p FISH test was requested on cytology material. FISH test was performed using TelVysion 12p telomeric probe and CEP 12 centromere probe on cell blocks. A ratio of 12ptel/CEP12 signal of 1.4 or greater was considered as positive. Patient demographics, clinical presentation, cytopathologic findings, and follow-up surgical resection data were reviewed and correlated.

Results: A total of 3 cases were identified, all men with an age range of 31 to 60 years. Two of three cases had follow-up resection. Table 1 summarizes cytology and resection findings along with demographics and clinical presentation. Cytopathologic diagnoses were: favor metastatic embryonal carcinoma, metastatic yolk sac tumor and adenocarcinoma (? somatic malignancy).. Follow-up resection showed metastatic embryonal carcinoma (Case 1) and metastatic sarcomatoid yolk sac tumor with somatic type malignancy (enteric type adenocarcinoma), microscopic focus of seminoma and giant cell tumor of bone (Case 3).This limited study demonstrated 100% sensitivity for detecting i12p abnormality by FISH test performed on cell blocks.

Conclusions: Cytomorphology of metastatic/extra-gonadal GCTs varies according to the histologic subtype. Sarcomatoid morphology of yolk sac tumor or somatic malignancy or mixed GCTs make cytopathology evaluation more challenging. FISH test for detection of i12p performed on cytology material is extremely useful in establishing germ cell origin of these metastatic GTCs with unusual cytomorphology and triaging for appropriate management in patients without prior history of GCTs.

Table 1: Summary of cytology cases with i12p FISH test

Case details	Case 1	Case 2	Case 3
Age/sex	31/M	41/M	60/M
Past history	Granulomatous disease	Hepatocellular carcinoma, well differentiated type, 10 years back	COVID-19 pneumonia
Clinical presentation	Abdominal pain	Multiple bilateral lung nodules, bladder mass	Back pain, weight loss
Imaging	Calcified lymphadenopathy and retroperitoneal masses	Multiple bilateral lung nodules, new bladder mass, no liver mass	Retroperitoneal mass
Site	Retro-peritoneum	Lung, left upper lobe	Retro-peritoneum
Specimen type	Fluid	FNA	FNA and biopsy with touch preparation
Prior history of germ cell tumor	No	No	No
Cytology Features	Cohesive aggregates of epithelioid cells with high nuclear : cytoplasmic ratios, irregular nuclei, and a small amount of amphophilic cytoplasm containing coarse granular material. Some of these aggregates are centered around small blood vessels.	Sheets and clusters of tumor cells with moderate to abundant cytoplasm, large nuclei and prominent nucleoli.	Bi-phasic malignant tumor with clusters of columnar cells arranged in acinar pattern imparting glandular component and tightly cohesive clusters of oval to spindle to pleomorphic cells as solid component with interspersed inflammatory cells and stripped nuclei in the background.

PST066

The Impact of COVID-19 on Aspirated Cytology Practice

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Introduction: During the lockdown period of the coronavirus disease 2019 (COVID-19) pandemic, cytopathology specimen volumes markedly declined at our institution. Given the importance of cytopathology specimens in screening for malignant disease, this raised the question whether the rate malignant diagnoses decreased as well and if particular anatomic sites were more drastically affected. Herein, we compiled cytology specimens received in April 2020 (during COVID-19) and compared to the previous year, April 2019 (pre-COVID-19).

Materials and Methods: All in-house aspirated cytopathology specimens were compiled for the months of April 2019 and April 2020. The following information was obtained: specimen ID, cytology diagnostic category (non-diagnostic, benign, atypical, suspicious, and malignant), anatomic site, and reviewing cytopathologist and pathologist. The total specimens within each cytology diagnostic category and from each anatomic site were quantified. For anatomic site and diagnosis type, the percentage of total cases was calculated and compared to the previous year standard using the Chi-squared test method.

Results: The aspirated cytology sample volume overall was lower in 2020 ($n=293$) compared to 2019 ($n=688$), and the quantity within each diagnostic category was decreased. The proportion of malignant diagnoses increased ($n=139,47.4\%$; $n=200,29.1\%$, $p=<0.0001$). Likewise, percentages of samples labeled suspicious for malignancy also increased ($n=21,7.2\%$; $n=27,3.9\%$, $p=0.0283$). Conversely, the percentage of atypical samples decreased but was not statistically significant ($n=46,15.7\%$; $n=126,18.3\%$, $p=0.3271$). Finally, benign diagnoses were drastically less frequent ($n=81,27.6\%$; $n=319,46.4\%$, $p=<0.0001$). The

percentage of samples from each anatomic site was not markedly different, except for breast (n=6,2.0%; n=3,0.4%, p=0.031).

Conclusions: The COVID-19 lockdown period serves as a prototypical state of emergency, wherein the volume of diagnostic procedures, and accordingly, pathology specimens are decreased. Understanding expected trends in the types of diagnoses made during states of emergency can help the practicing pathologist prepare for similar events and to prioritize the limited resources available during these periods.

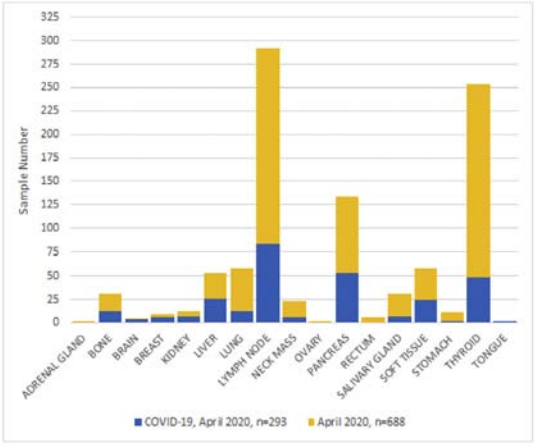

Figure 1. Correlates the case numbers of each body site during the lockdown and of the corresponding month of the year prior.

	April 2020 During COVID-19		April 2019 Pre-COVID-19			
By Anatomic Site	**n**	**%**	**n**	**%**	**Difference**	**P value**
ADRENAL GLAND	0	0.0%	1	0.1%	-	-
BONE	13	4.4%	18	2.6%	1.8%	0.7870
BRAIN	4	1.4%	1	0.1%	1.3%	0.9220
BREAST	6	2.0%	3	0.4%	1.6%	**0.031**
KIDNEY	7	2.4%	5	0.7%	1.7%	0.8293
LIVER	26	8.9%	27	3.9%	5.0%	0.4599
LUNG	12	4.1%	46	6.7%	2.6%	0.7409
LYMPH NODE	83	28.3%	209	30.4%	2.1%	0.7239
NECK MASS	6	2.0%	17	2.5%	0.5%	0.9460
OVARY	0	0.0%	2	0.3%	-	-
PANCREAS	53	18.1%	81	11.8%	6.3%	0.3101
RECTUM	1	0.3%	5	0.7%	0.4%	0.9665
SALIVARY GLAND	7	2.4%	24	3.5%	1.1%	0.8871
SOFT TISSUE	24	8.2%	34	4.9%	3.3%	0.6126
STOMACH	2	0.7%	9	1.3%	0.6%	0.9462
THYROID	48	16.4%	206	29.9%	13.5%	0.0593
TONGUE	1	0.3%	0	0.0%	-	-
By Diagnostic Category						
INADEQUATE/NONDIAGNOSTIC	6	2.0%	16	2.3%	0.3%	0.7700
BENIGN	81	27.6%	319	46.4%	18.8%	**<0.0001**
ATYPICAL	46	15.7%	126	18.3%	2.6%	0.3271
SUSPICIOUS	21	7.2%	27	3.9%	3.3%	**0.0283**
MALGINANT	139	47.4%	200	29.1%	18.3%	**<0.0001**
Total	**293**		**688**			

Figure 2. Shows the case numbers of each body site and the diagnostic categories during the lockdown and of the corresponding month of the year prior.

PST067

Vanishing Viral Cytopathic Effect Diagnoses in the Cytopatholoogy Laboratory

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Introduction: Cytological materials from various parts of the body have been traditionally evaluated for viral cytopathic effect. With the emerging of novel diagnostic tools and new therapeutic agents, the frequency of viral infection diagnosis in cytopathology may have been changed. We undertook a retrospective study to assess if the number of viral cytopathic effect cases in the cytopathology laboratory has been impacted by the new clinical practice.

Materials and Methods: From 11/1992 to 08/2020, the cytopathology database was searched for diagnosis of viral cytopathic effect in bronchial lavage, urine and skin specimens. The clinical and cytological data were reviewed in detail.

Results: A total of 115 viral diagnoses were identified, including 23 skin herpes simplex virus (HSV), 14 urine HSV, 27 lung HSV, 28 urine polyoma virus (confirmed by SV40 immunostain), and 23 lung cytomegalovirus (CMV). Oral cavity HSV, uterine cervical HSV and HPV infections were not included in this study. The cases were divided into group 1(diagnoses from 1992 to 2006) and group2 (diagnoses from 2007 to 2020). The results are summarized in Table1. Comparing with group 1, group 2 showed marked decrease (31%-90%) of all viral diagnoses in various body sites.

Conclusions: Our data showed drastically reduced number of viral cytopathic effect diagnoses in last decade. The possible reasons include but not limited to: 1. PCR-based detection of HSV on skin blister fluid has replaced the traditional Tzanck test. 2. Plasma polyoma virus screening with quantitative nucleic acid testing in all kidney transplant recipients can identify polyoma viral infection early. 3. Antiviral prophylaxis and preemptive treatment in immunocompromised patients has decreased HSV and/or CMV infections.

Table 1

Viral infections	Group1 (1992-2006)	Group2 (2007-2020)	% Decrease
Skin herpes	21	2	90%
Urine herpes	11	3	72%
Lung herpes	16	11	31%
Urine polyoma vrius	19	9	53%
Lung CMV	21	2	90%

PST068

Spectrum and Yield of Fine Needle Aspiration Cytology in Retroperitoneal Lymph Nodes in Caucasian Population: Single Institution 5-year Experience

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Introduction: Retroperitoneal lymph nodes are deep-seated group of nodal tissue that are relatively inaccessible and impose adiagnostic challenge to adequate tissue sampling. Yet these are important sites of tumor metastasis and diverse pathological processes. Here we analyze the spectrum of disease processes involving the retroperitoneal lymph nodes, as well as the diagnostic yield of fine needle aspiration (FNA) cytology in their assessment.