

Published Research -SQCCCCRC

Head, Neck and Thoracic Cancers Program (2022)

1. Jayakrishnan B, Al-Moundhri M, Burney I, Al- Hashami Z, Al-Bimani K. Pulmonary toxicities of immune check point inhibitors in the management of cancer; Mini Review Adv Respir Med. 2022; 90: 219–229. doi: 10.5603/ARM.a2022.0036.

Immune-checkpoint inhibitors (ICIs) have revolutionized treatment of solid malignancies, leading in some cases to durable responses. However, an unchecked immune response might lead to mild to severe immune-related adverse events (irAEs). Pulmonary toxicity, though often referred to as Immune checkpoint inhibitor-related pneumonitis (ICI-pneumonitis), covers a broad and overlapping spectrum of pulmonary manifestations and has been described in < 10% of patients receiving ICI either alone or in combination. However, the actual numbers in real-world populations are high, and are likely to increase as the therapeutic indications for ICIs continue to expand to include other malignancies. Drug withdrawal is the mainstay of treatment for ICI-pneumonitis. However, a good number of patients with higher grades of toxicity may need corticosteroids. Patients with refractory disease need additional immunosuppressive agents. This brief review discusses the incidence, risk factors, mechanisms, clinical and radiologic manifestations, diagnosis and the current management strategies of ICI-pneumonitis.

2. Jayakrishnan B, Nair P. COVID, Obstructive Airway Diseases, and Eosinophils: a complex interplay. Sultan Qaboos Univ Med J.2022; 22(2): 163–166.doi: 10.18295/squmj.1.2022.001.

Eosinopenia is associated with a high risk of serious COVID-19 disease. In COPD, eosinopenia is associated with poorer patient outcomes. Eosinophils play a key role in allergic diseases, including asthma. Many patients with asthma can have intentionally induced eosinopenia by biological drugs. In this context, the role of eosinophils remains a puzzle in COVID-19. Corona viruses use the cell receptor, the angiotensin-converting enzyme 2 (ACE2) for entrance into respiratory epithelial cells. The expression of ACE2 on ACE inhibitors is increased in patients with COPD, diabetes mellitus and hypertension explaining their higher risk of developing COVID-19. Lower expression of ACE has been noted in the airways of asthmatic patients which reduces the chances of a COVID-19 infection. Eosinopenia, that might also represent a low T2 immune status,



is associated with poor outcomes in asthmatic and possibly in non-asthmatic COPD patients. Eosinophils are unlikely to be directly involved in lung injury as the use of anti-eosinophil biologics has not been associated with poor outcomes in asthma patients with COVID-19. Eosinophil numbers in peripheral blood are likely to be just a biomarker of the biological activity of T helper 2 cytokines. The general consensus is to continue to manage airway diseases as per current guidelines with the appropriate use of corticosteroids and bronchodilators and judicious use of biologics as indicated.

3. Jayakrishnan B, Al-Jamali A, Al-Mubaihsi S, Al-Aghbari J. Pneumothorax or Skin Fold? Mind the Gap. Sultan Qaboos Univ Med J. 2022; 22(4), 591–592. doi: 10.18295/squmj.2.2022.015.

An elderly male patient with unresectable, advanced dedifferentiated retroperitoneal liposarcoma being treated with palliative chemotherapy was admitted with early satiety, poor oral intake, dehydration and ascites. Though a routine chest radiograph was suggestive of bilateral pneumothorax, CT chest showed well expanded lungs without any evidence of pneumothorax. The curved shadow of skin folds can mimic the visceral pleural margin and can often be misinterpreted as a pneumothorax leading to unnecessary interventions. In addition to the skin folds, the pleural line can also be mimicked by clothing or bed sheet folds, oxygen reservoir masks, elevated hemidiaphragm, rib or scapular borders, lung blebs or colonic interposition. These artefacts, when misinterpreted as pneumothorax, can lead to unnecessary and often catastrophic interventions.

4. Al-Jahdhami I; Khalid Al-naamani¹, Al-Mawali A, Bennji SM. Respiratory Complications after COVID-19. Oman Med J. 2022 Jan 31;37(1):e343. doi: 10.5001/omj.2022.52. PMID: 35282425; PMCID: PMC8907756.

(COVID-19) pandemic has been associated with high short-term morbidity and mortality. Lungs are the main organs affected by SARS-CoV-2 infection. In the long-term, the pulmonary sequelae related to COVID-19 are expected to rise significantly leading to an extended impact on community health and health care facilities. A wide variety of long-term respiratory complications secondary to COVID-19 have been described ranging from persistent symptoms and radiologically observable changes to impaired respiratory physiology, vascular complications, and pulmonary fibrosis. Even after two-years, respiratory sequelae related to post-acute SARS-CoV-2 infection have not been fully explored and understood. The main treatment for most COVID-19 respiratory complications is still



symptomatic and supportive-care oriented. In this review article, we shed light on current knowledge of the post-COVID-19 complications, focusing on pulmonary fibrosis, treatment directions, and recommendations to physicians.)

5. Bennji SM, Al-Kindi AH, Jayakrishnan B, Al Shehhi A, Itkhan B. Cheerios sign: A rare sign on chest computed tomography. *Afr J Thorac Crit Care Med.* 2022 Dec 19;28(4):10.7196/AJTCCM.2022.v28i4.251. doi: 10.7196/AJTCCM.2022.v28i4.251. PMID: 36874190; PMCID: PMC9979626.

(A 44-year-old man initially presented in August 2020 with a right iliopsoas mass, which was found to be a high-grade myxofibrosarcoma. At initial presentation, there was no evidence of metastases anywhere. He underwent local resection with free surgical margins followed by adjuvant radiotherapy. A year later, he presented with mild haemoptysis for a few weeks. High-resolution computed tomography (CT) showed a nodule with a central lucent cavity and a surrounding ground-glass rim known as the Cheerios sign in the right lower lobe. Bronchoscopy revealed spots of fresh blood coming from the lateral basal segment of the right lower lobe. Bronchoalveolar lavage revealed no malignant cells on cytology, and the microbiology work up was negative. The patient underwent video-assisted thoracoscopic surgery and wedge resection of the nodule. Histopathological findings confirmed metastatic myxofibrosarcoma. Subsequently, the patient was subjected to adjuvant chemotherapy. Cheerios sign is a rare finding on CT, defined as a nodule with central radiolucency, resembling the ring-shaped Cheerios breakfast cereal. Cheerios sign in patients with underlying malignancy should be considered metastatic until proven otherwise).

6. Bennji SM, Jayakrishnan B, Al-Kindi AH, Al-Jahdhami I, Al-Hashami Z. Lung cancer screening in the gulf: Rationale and recommendations. *Ann Thorac Med.* 2022 Oct-Dec;17(4):189-192. doi: 10.4103/atm.atm_69_22. Epub 2022 Oct 7. PMID: 36387753; PMCID: PMC9662086.

(Lung cancer is the leading cause of cancer-related death worldwide among both men and women. Although advances in therapy have been made, the 5-year survival rates for lung cancer remain poor, ranging from 10% to 20%. One of the main reasons is late presentation, as only 25% of patients are amenable to cure at the time of presentation. Therefore, the emphasis on lung cancer screening (LCS) is growing with the current evidence that has shown benefits with low-dose computed tomography scan of the chest in high-risk populations. LCS remains a debated topic in Gulf Cooperation Council (GCC) countries, possibly due to a lack of local



experience. In this article, we explore the rationale and give recommendations on the best approach for LCS in GCC).

7. AbuDraz, N., Al-Masruri, M. S., Al Badaai, G., Al-Shamari, Y., Elshafie, O., & Siddiqui, K. M. (2022). Evolution of Minimally Invasive Adrenal Surgery at a Tertiary Care Centre in Oman. *Sultan Qaboos University Medical Journal*, 1(1). [squmj.4.2022](#).

Objectives: This study aimed to review the case records and report the outcomes of open and laparoscopic adrenalectomy (LA) cases. **Methods:** This retrospective study included patients who underwent adrenal surgery from January 2010 to December 2020 at Sultan Qaboos University, Muscat, Oman. Demographic details, indications, surgical approaches, intra-operative data, complications, final pathology and outcome at the last follow-up were analysed. **Results:** A total of 52 patients underwent 61 adrenalectomies; six patients had a bilateral procedure while three patients had to undergo revision surgery resulting in a total of 55 individual procedures. Open adrenalectomy (OA) was performed on 11 patients and 44 patients underwent LA. Most patients (n = 27) were obese with a body mass index >30. Functional adenoma was excised in 36 patients with final diagnosis of Conn's syndrome in 15, pheochromocytoma in 13 and Cushing's syndrome in nine patients. Five patients had surgery for oncological indications. Non-functional adenoma was excised in 13 patients, with a mean size of 8.9 cm (range: 4–15 cm). The mean duration of surgery was less in laparoscopic procedure compared to open (199 versus 246 minutes). The mean estimated blood loss in LA was significantly less (108 versus 450 mL; $P < 0.05$). Out of 55 procedures, only one patient developed Clavien-Dindo grade 2 complication. **Conclusion:** Both LA and OA were safely performed at the researchers' institution. There is a growing trend for LA, and with experience, the duration of surgery and estimated mean blood loss are demonstrating a positive trend.

8. Omayma Elshafie¹, Samir Hussein², Moza AlKalbani³, Aisha AlHamadani⁴, Abir Bou Khalil¹ and Nicholas Woodhouse⁵. Papillary follicular variant thyroid cancer in a malignant struma ovarii: a report of a rare case. October 2022. EDM-21-0169.

A 33-year-old female presented in 2013 with left flank pain. Ultrasound and MRI pelvis showed a complex mass 9 × 7 cm arising from the left ovary suggestive of ovarian torsion. She underwent a laparoscopic cystectomy, but the patient was lost to follow-up. Three years later, she presented with abdominal distension. Ultrasound and CT scan revealed a solid left ovarian mass with ascites and multiple peritoneal metastasis. Investigations



showed elevated CA 125, CA 19-9. Ovarian malignancy was suspected. She underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy on November 2016. The histopathology confirmed a well-differentiated thyroid cancer of ovarian origin with features of a papillary follicular variant without evidence of ovarian cancer and the thyroglobulin (Tg) level was elevated, more than 400 consistent with the diagnosis of malignant struma ovarii. The follow-up post-surgery showed normalization of CA 125, CA 19-9 and Tg. The patient underwent total thyroidectomy on January 2017. The histology was benign excluding thyroid cancer metastases to the ovary. She was started on thyroxine suppression, following which she received two ablation doses ^{131}I each 5.3 GBq. The Tg remains slightly elevated at less than 10. ^{131}I WBS showed no residual neck uptake and no distant avid metastasis. She was planned for molecular analysis which may indicate disease severity. We describe a case of malignant struma ovarii with widespread metastatic dissemination and a good response to surgery and ^{131}I treatment without recurrence after 5 years of follow-up. The Tg remains slightly elevated indicating minimal stable residual disease.

