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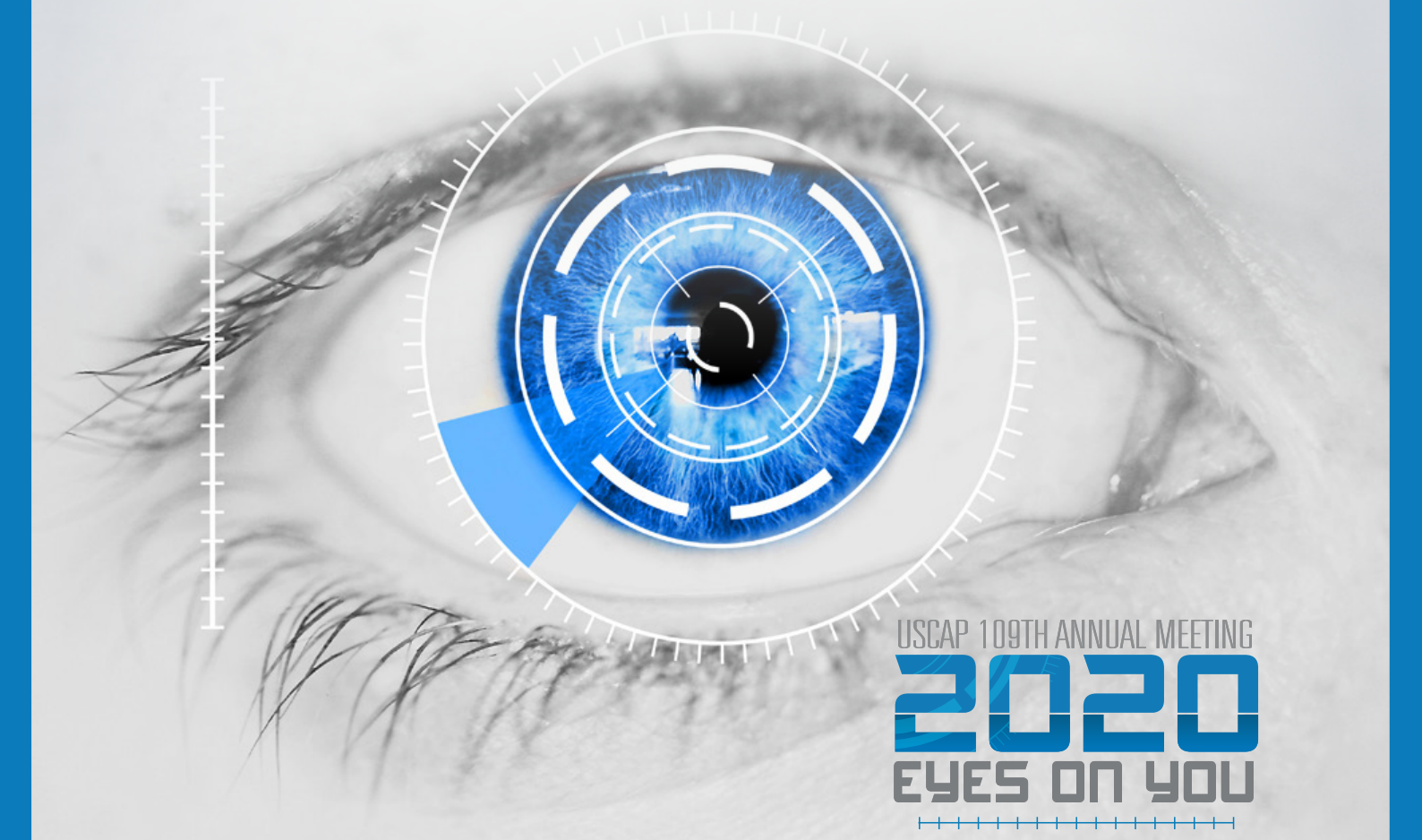
ABSTRACTS

DERMATOPATHOLOGY

(459-522)



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465 High Resolution Multiplexing of Melanoma Microenvironment in Responders/Non-Responders to Checkpoint Therapy

Francesca Bosisio[1], Asier Antoranz[2], Yannick van Herck[2], Maddalena Bolognesi[3], Seohdna Lynch[4], Arman Rahman[4], William Gallagher[5], Giorgio Cattoretti[3], Joost van den Oord[6], Oliver Bechter[6]
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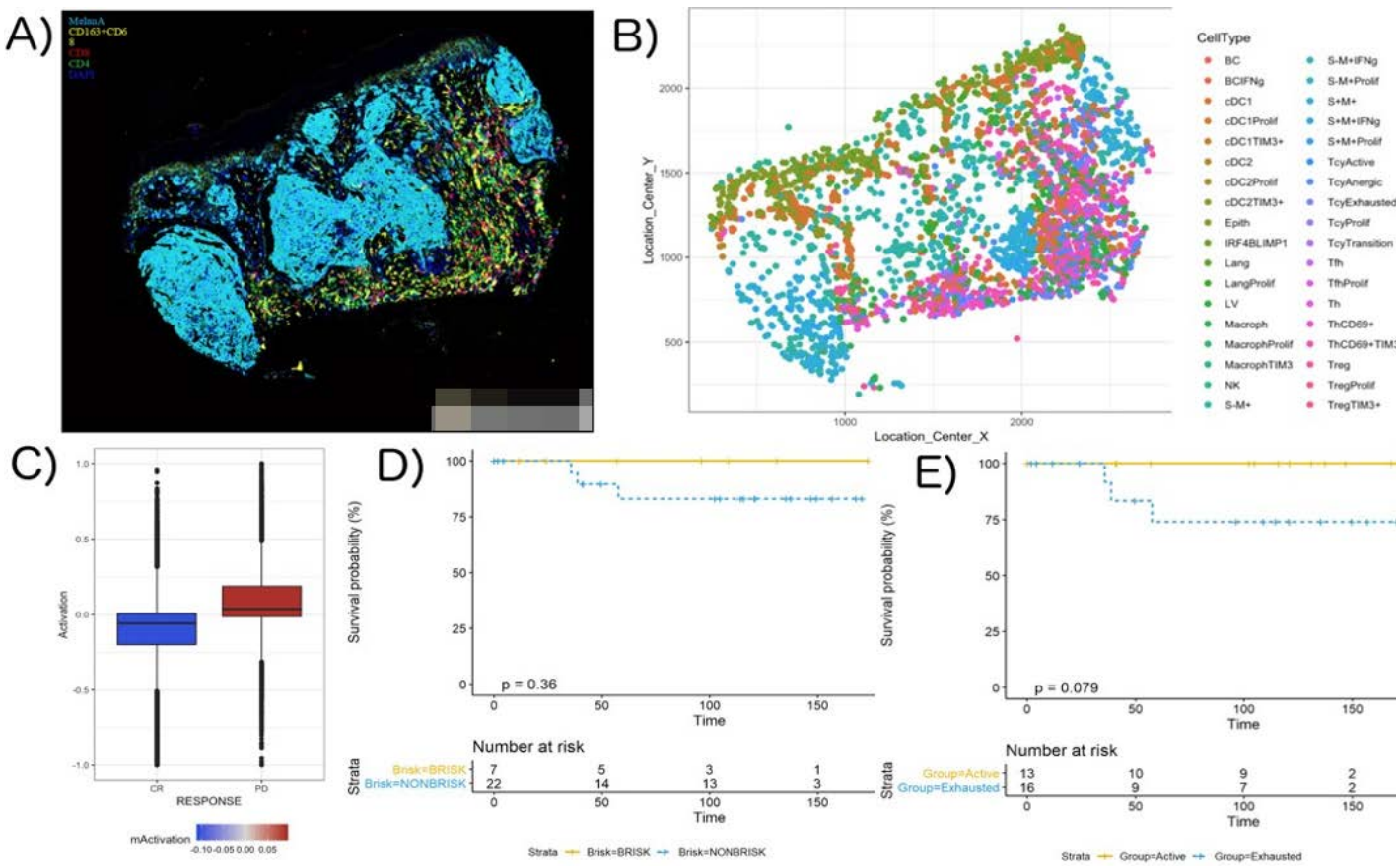
Disclosures: Francesca Bosisio: None; Asier Antoranz: None; Yannick van Herck: None; William Gallagher: None; Oliver Bechter: None

Background: An *in situ* "high resolution" investigation of the tumor microenvironment has been urged in recent years by the previously failed attempt to find solid histological biomarkers for immunotherapy response. Our objective is to characterize the melanoma microenvironment with a multi-omics approach to find significative differences between responders and non-responders.

Design: 23 metastases were collected from patients that underwent PD-1 inhibition (10 complete/partial responders, 13 progressive disease) prior the start of the therapy. A Nanostring PanCancer Immune profiling panel was performed on fresh frozen material. On the same patients, a panel of 80 markers was performed according to the MILAN multiplex technique on formalin-fixed, paraffin-embedded material. A bioinformatic pipeline was applied to the first technique to find differences in gene expression between responders and non-responders, and to the second technique to phenotype the inflammatory populations present in the tissue and to investigate the spatial relationships between them.

Results: Several genes implicated in adaptive immunity/T cell activation were found to be differentially regulated in the responders. This was confirmed also by pathway analysis. In tissue sections, part of the proteins on the 80 selected for the panel showed a differential expression in the responders, in particular the immune checkpoint molecule TIM3. The level of CD8+ lymphocytes (cyT) exhaustion was higher in responders before treatment. In an active microenvironment, melanoma cells are in contact not only with active cyT, but also with active T helpers, that tend to fade away with the transition towards exhaustion, while myeloid cells express progressively higher levels of TIM3, assuming an immune suppressive role, and increase their interaction with cyT in all their functional statuses.

Figure 1 - 465



Conclusions: Associating the analysis of the phenotypical and functional heterogeneity of the immune infiltrate to the spatial distribution of each cell type could improve tissue-based biomarkers discovery.

466 Iodine Toxicity After Administration of Iodinated Contrast: New Observations in Iododerma

Scott Bresler[1], Mason Runge[2], Eun-Young Choi[2], May Chan[2], Lori Lowe[2]
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Disclosures: Scott Bresler: None; Mason Runge: None; Eun-Young Choi: None; May Chan: None; Lori Lowe: None

Background: Iododerma is a rare halogenoderma that develops following exposure to iodine-containing compounds, including intravenous (IV) iodinated contrast media. Affected patients typically suffer from chronic kidney disease. Although a wide range of cutaneous manifestations have been reported, the most common are papulopustular or vegetative nodules located on the face. The histologic findings in iododerma are classically reported as pseudoepitheliomatous hyperplasia with intraepidermal, follicular, and/or dermal neutrophilic microabscesses. Due to the rarity of this condition, less typical presentations are under-recognized.

Design: The pathology archives of our institution were searched for cases of iododerma diagnosed between 1987 and April 2019. Three cases were confirmed after a retrospective chart review of these patients, who were all evaluated by our inpatient consult dermatology service. Clinical data and histopathologic features are summarized.

Results: Three cases of iododerma following IV iodinated contrast media administration in patients with severe chronic kidney disease are described. All patients had rapid evolution of skin lesions presenting as papules or bullae with variable hemorrhagic crusting (Figure 1). All biopsies demonstrated a neutrophil-rich dermal infiltrate (Figure 2A,B) containing round anucleate structures resembling Cryptococcus (Figure 2B, inset) with or without vasculitis (Figure 2C). One patient had gastrointestinal involvement, with biopsy of a proximal jejunum ulcer showing similar findings. Special stains for microorganisms and tissue cultures were negative in all cases. In all three cases, the presumed nuclear fragments within the haloed spaces stained strongly with PU.1 without appreciable staining for myeloperoxidase, suggesting that the structures are likely degenerating histiocytes. Urine iodine levels were elevated greatly above reference ranges in all cases.

Figure 1 - 466

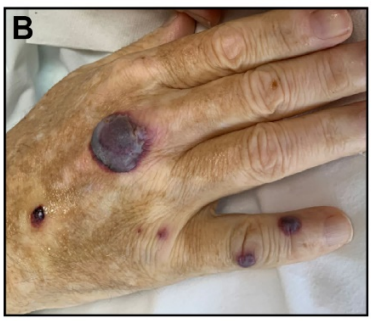
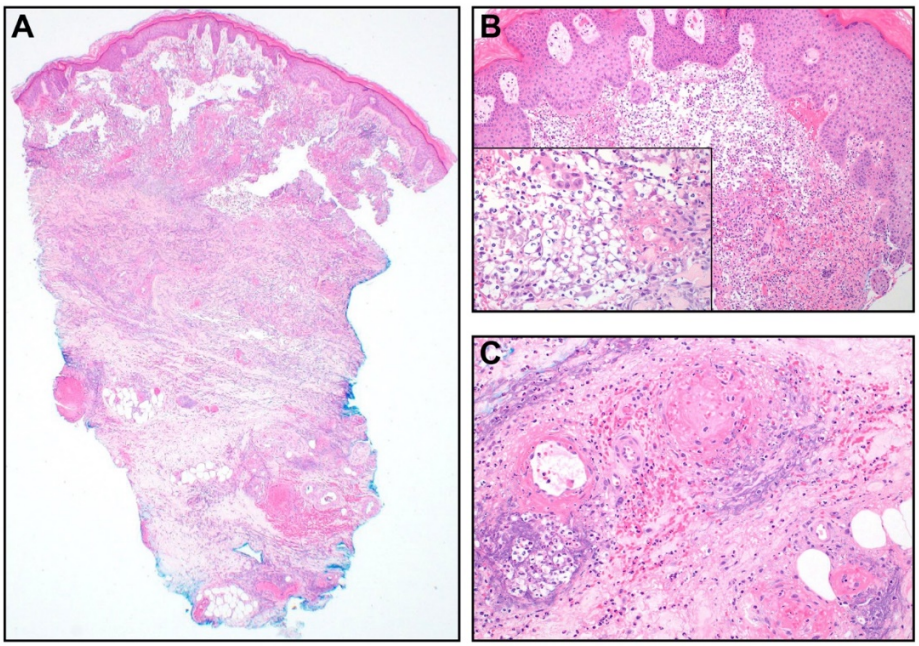


Figure 2 - 466



Conclusions: Iododerma may be a sequela of IV iodinated contrast media administration and can manifest as a neutrophilic dermatosis with *Cryptococcus*-like haloed structures with or without concomitant vasculitis**.** Iododerma can progress rapidly and be polymorphous in its clinical presentation and histopathologic features, simulating infection, Sweet syndrome, and/or immune complex vasculitis. Our series expands the histomorphologic spectrum to include cryptococcal-like structures and vasculitis as potential diagnostic clues to this rare condition.