Critical Changes in Therapy for Diffuse Astrocytic and Oligodendroglial Tumors in Adults

Part of the *Cancer Care Talks* Webinar Series hosted by the Disease Pathway Management Program at Ontario Health (Cancer Care Ontario)

Dr. Derek Tsang, Dr. Maria MacDonald, Dr. Stephen Yip, and Dr. Nimish Mohile

APRIL 12TH, 2023, 5:00 PM – 6:00 PM

Ontario Health
Cancer Care Ontario

Land Acknowledgement

- I wish to acknowledge this land on which Ontario Health (Cancer Care Ontario) operates
- For thousands of years, it has been the traditional land of the Haudenosaunee, the Anishinabewaki, the Mississauga's of the Credit First Nation, and the Wendake-Nionwentsio
- Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land
- I also wish to acknowledge our responsibility to protect the land for 7 generations for our children and their children
- Finally, I wish to acknowledge and commemorate the children whose bodies have been found at residential schools across Canada – may this never happen again

Welcome

Learning Objectives:

At the end of this webinar, participants will be able to:

1. Describe the critical changes in diagnosis and treatment prompted by the updated WHO CNS5 grading criteria of gliomas.

2. Demonstrate and apply best practices regarding therapy for diffuse astrocytic and oligodendroglial tumours in adults.

Agenda

Time	Topic	Presenter(s)
5:00 – 5:05 PM	Welcome and webinar objectives	Dr. Sunit Das
5:05 – 5:15 PM	Update on WHO CNS5 grading criteria	Dr. Stephen Yip
5:15 – 5:55 PM	Clinical case discussion highlighting recommendations from OH(CCO) endorsement of ASCO-SNO guideline	Dr. Maria MacDonald Dr. Derek Tsang Dr. Nimish Mohile
5:55 – 6:00 PM	Closing remarks and next steps	Dr. Sunit Das

MOC Section 1 Credits

Cancer Care Talks is a self-approved group learning activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada.

- An evaluation form will be sent to all webinar registrants following the webinar
- Please email your completed evaluation form to Spencer.MacDonald@ontariohealth.ca and Michelle.Lee@ontariohealth.ca
- After you submit your evaluation form, a certificate of participation will be emailed to you

Housekeeping

- This webinar is being recorded and the recording will be made available.
- If you have any questions, please enter them in the chat/Q&A or raise your hand via Teams. Questions will be addressed toward the end of or after the webinar.
- In order to aid in collating questions/feedback, we ask that you please introduce yourself (name, discipline and hospital/organization) before asking a question or providing feedback

Disclosure of Conflicts of Interest

- Dr. Sunit Das
  - Honorarium from Medexus to train and introduce 5-ALA as an adjunct for glioblastoma surgery to Canadian neurosurgeons
  - Royalties from Oxford University Press for The Oxford Handbook of Ethics of AI
  - Member of advisory board for Sub-Cortical Surgery Group
  - Consultancy for Xpan Medical
  - Grant to study novel protein in glioblastoma funded by Alkermes
  - Invited speaker, mediator, and course instructor for Congress of Neurological Surgeons, American Association of Neurological Surgeons, and Society for Neuro-Oncology
- Dr. Stephen Yip
  - Member of advisory board – Amgen, AstraZeneca, Bayer, Incyte, and Roche
  - Grant to perform NGS testing for NTRK detection funded by Roche
- Dr. Derek Tsang
  - Mevion Medical Systems and Elekta AB provided partial travel funding for an event unrelated to this educational event
  - Consultant - Need
- Drs. Maria MacDonald and Nimish Mohile
  - No conflicts of interest to disclose

WHO CNS5 Diagnostic Update

Dr. Stephen Yip
Neuropathology
BC Cancer Agency

Adult gliomas

2.1.1: Adult-type diffuse gliomas
- 2.1.1.1: Astrocytoma, IDH-mutant
- 2.1.1.2: Oligodendroglioma, IDH-mutant and 1p/19q-codeleted
- 2.1.1.3: Glioblastoma, IDH-wildtype

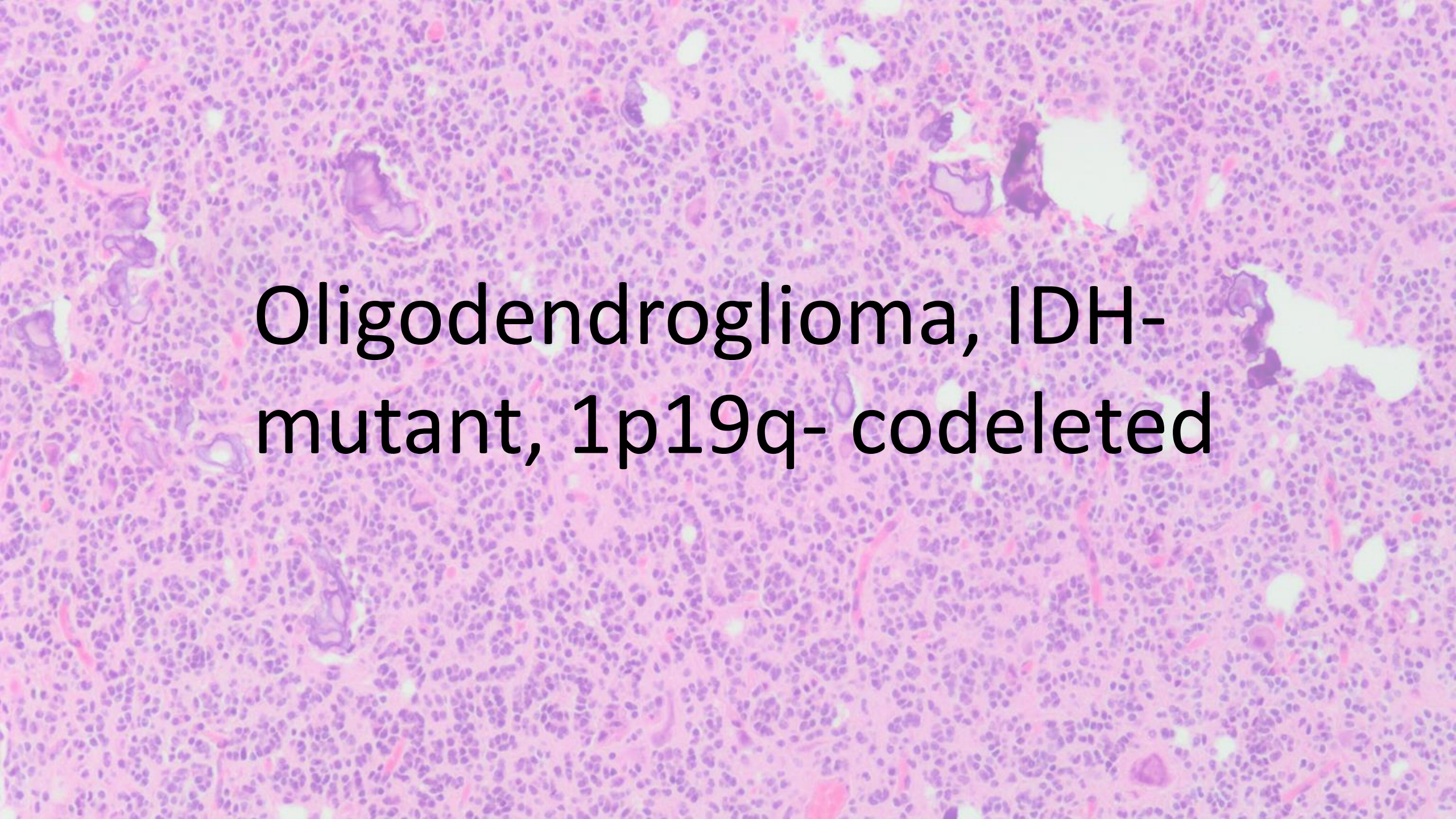
2.1.3: Circumscribed astrocytic gliomas
- 2.1.3.1: Pilocytic astrocytoma
- 2.1.3.2: High-grade astrocytoma with piloid features
- 2.1.3.3: Pleomorphic xanthoastrocytoma
- 2.2.0.4: Subependymal giant cell astrocytoma
- 2.2.0.1: Chordoid glioma
- 2.2.0.2: Astroblastoma, MN1-altered

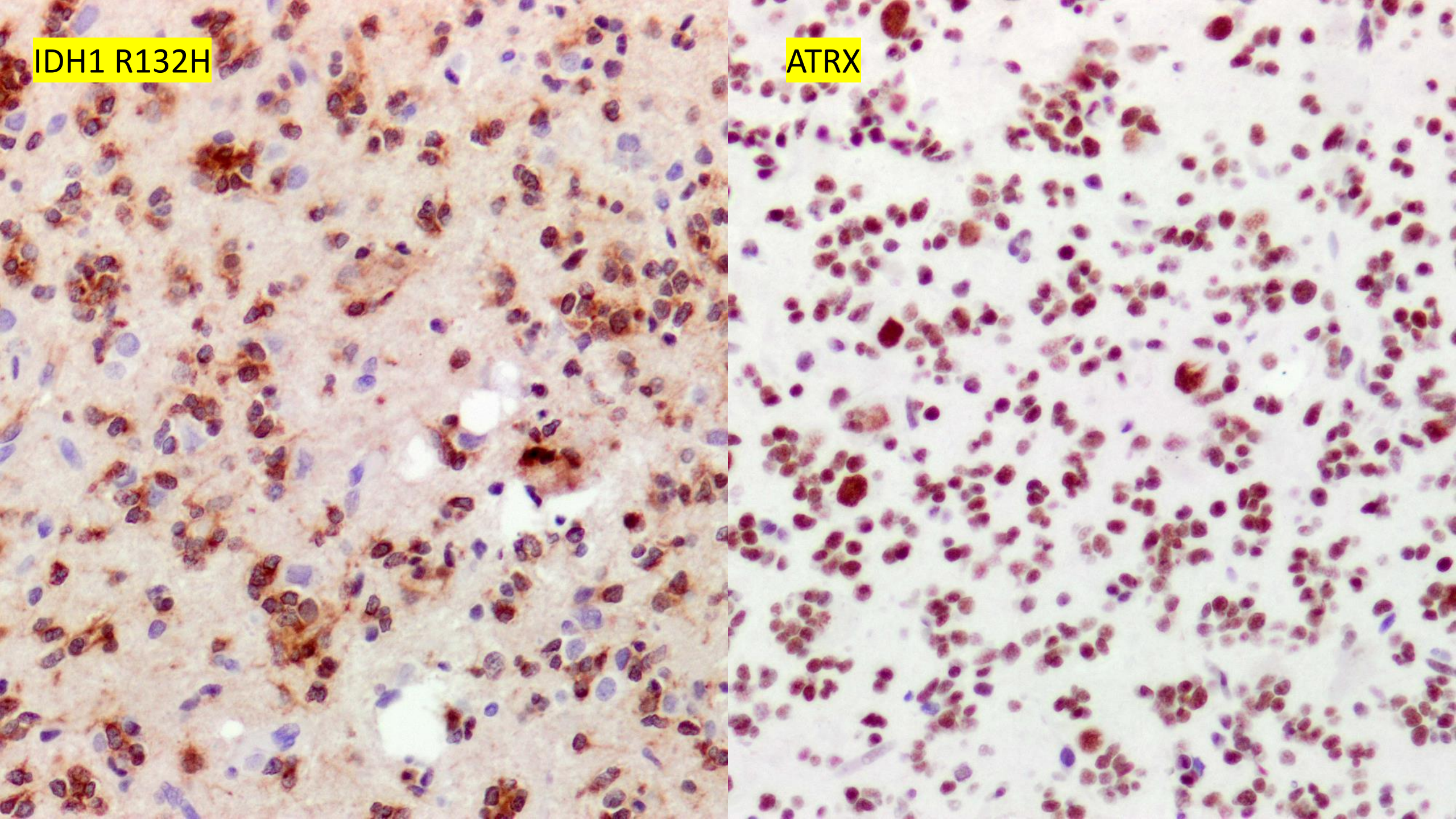
Reconcile histological and molecular features in CNS5

- A “low grade” IDH- wildtype glioma by histology can be classified as a GBM
- A “WHO 4” GBM, by histology, will be classified as a WHO 4 astrocytoma if shown to be IDH mutant
- A Grade 2/3 IDH-mutant astrocytoma can be graded as 4 if accompanied by *CDKN2A/B* loss

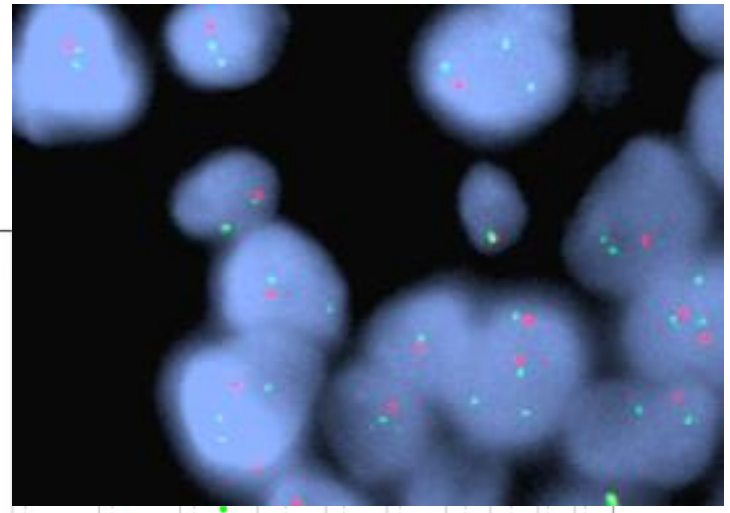
Beware of the terms ASTROCYTOMA and GLIOBLASTOMA

- **Glioblastoma** only for adult IDH-wt tumours
- NO MORE **ANAPLASTIC** (use grading within types)
  - Astrocytoma, IDH-mutant (2, 3, 4)
  - IDH-mutant Grade 4 tumours have CDKN2A/B homozygous loss (OR traditional grade 4 histological features)
  - ODG, IDH-mutant and 1p/19q-codeleted (2,3)
  - Ependymoma, MPE, SE (1,2,3)
- Grade 4 = Molecular GBM, IDH-wt; DMG, H3 K27-altered; DHG, G34-mut; Pedi HGG, IDH- and H3-wt **REGARDLESS OF HISTOLOGY**


Oligodendroglioma, IDH-mutant, 1p19q- codeleted


IDH1 R132H
ATRX

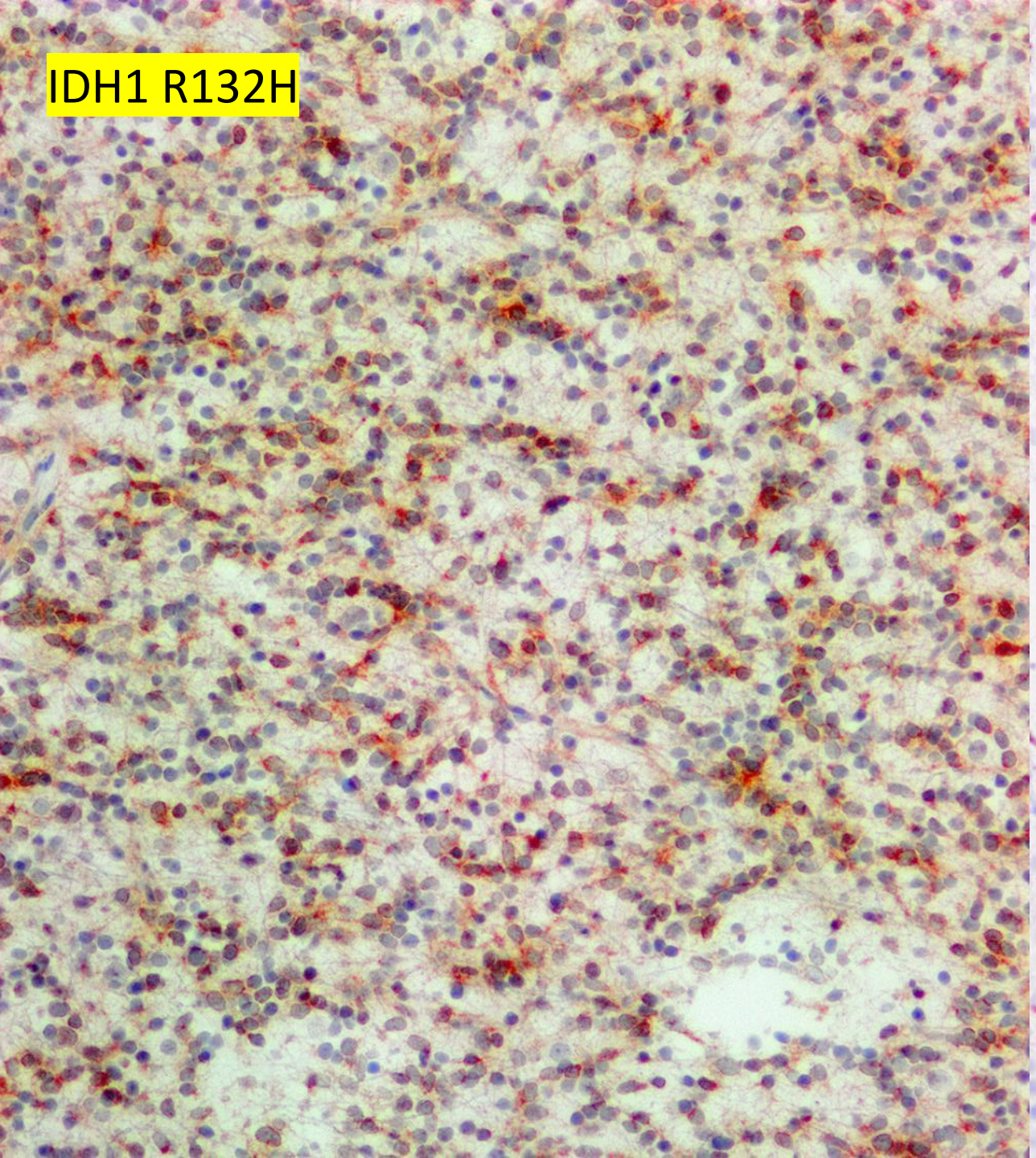
1p19q- codeletion

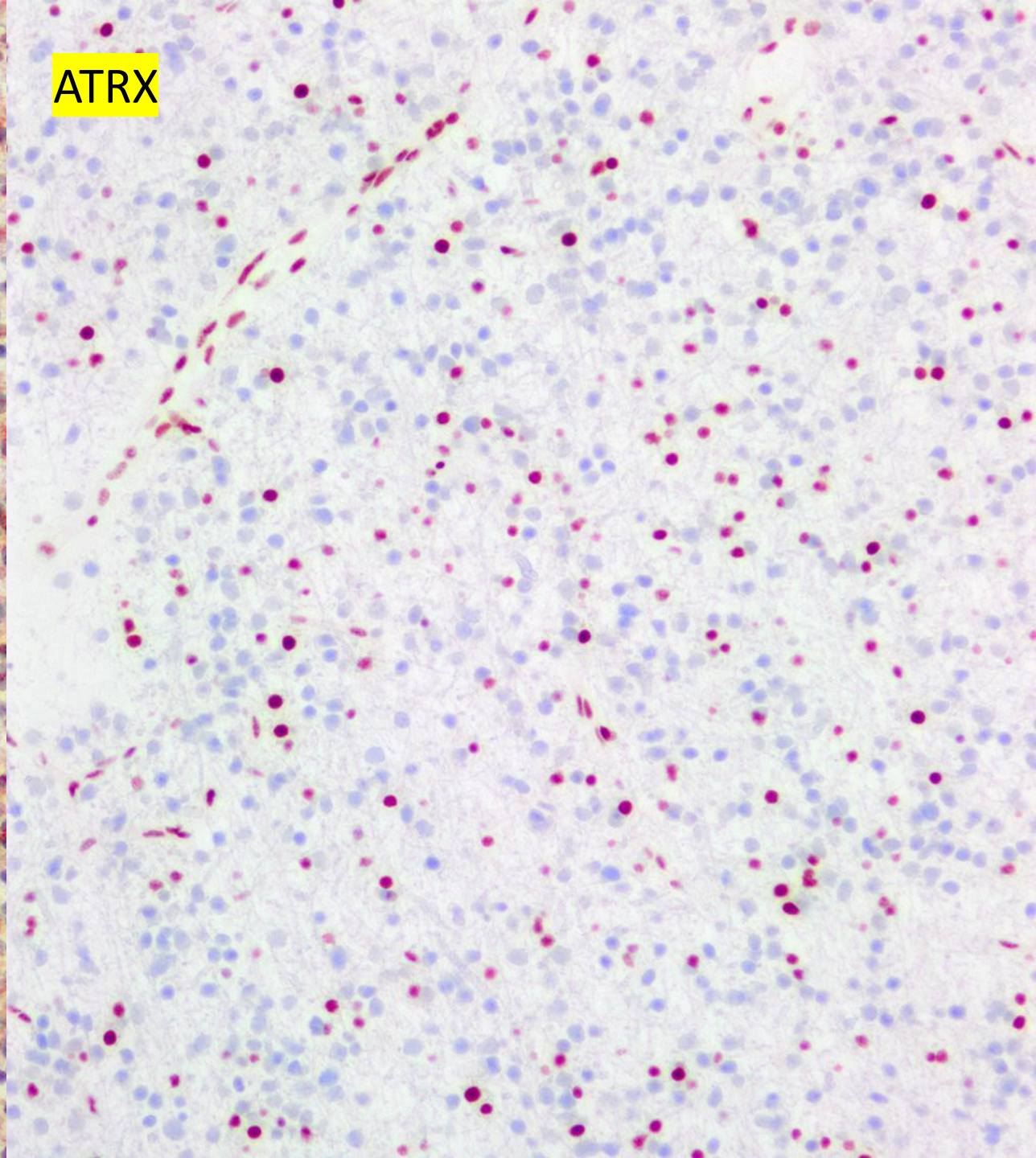


Essential:
A diffusely infiltrating glioma
AND
IDH1 codon 132 or *IDH2* codon 172 missense mutation[a]
AND
Combined whole-arm deletions of 1p and 19q
Desirable:
DNA methylome profile of oligodendroglioma, IDH-mutant and 1p/19q-codeleted
Retained nuclear expression of ATRX
TERT promoter mutation

[a]IDH mutation analysis may not be required when DNA methylome profiling is performed and unequivocally assigns the tumour to the methylation class oligodendroglioma, IDH-mutant and 1p/19q-codeleted.

Astrocytoma, IDH- mutant


IDH1 R132H

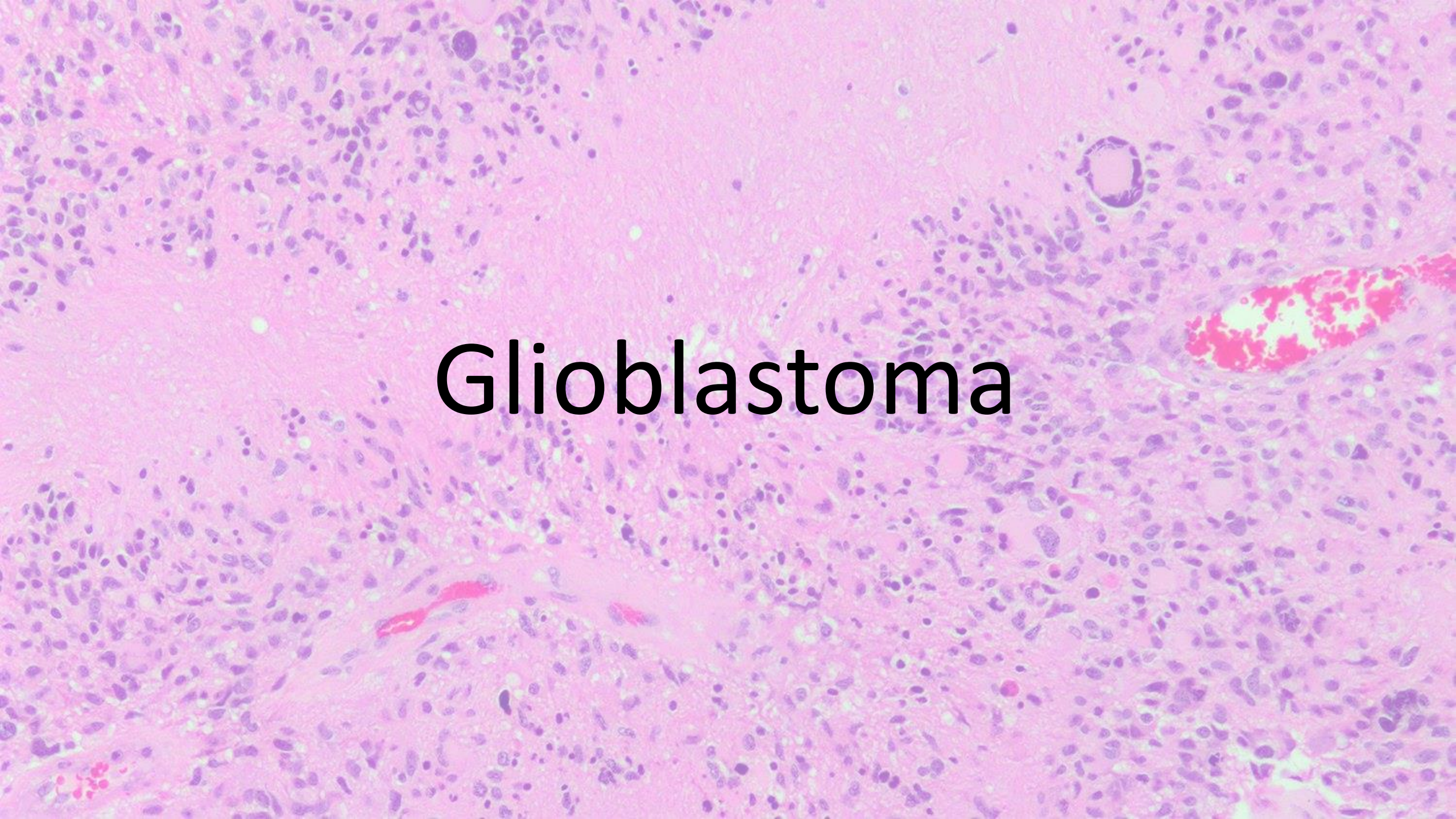

ATRX

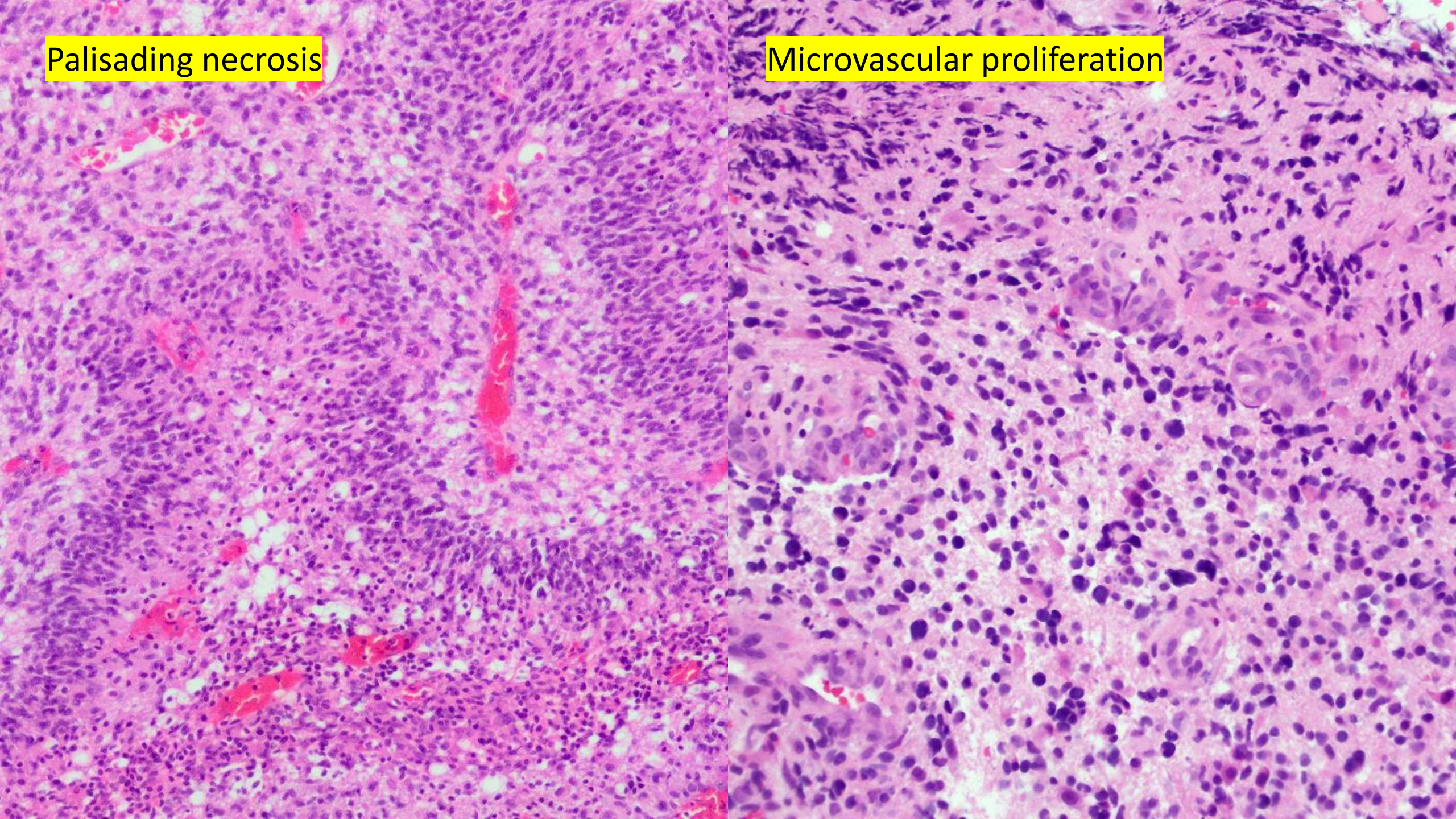
Essential:	
A diffusely infiltrating glioma	
AND	
IDH1 codon 132 or *IDH2* codon 172 missense mutation	
AND	
	Loss of nuclear ATRX expression or *ATRX* mutation
	OR
	Exclusion of combined whole-arm deletions of 1p and 19q
Desirable:	
TP53 mutation or strong nuclear expression of p53 in > 10% of tumour cells	
Methylation profile of astrocytoma, IDH-mutant	
Astrocytic differentiation by morphology	

Grading criteria for astrocytoma, IDH-mutant

Grade	Criteria
CNS WHO grade 2	· A diffusely infiltrative astrocytic glioma with an *IDH1* or *IDH2* mutation that is well differentiated and lacks histological features of anaplasia · Mitotic activity is not detected or very low · Microvascular proliferation, necrosis, and homozygous deletions of *CDKN2A* and/or *CDKN2B* are absent
CNS WHO grade 3	· A diffusely infiltrative astrocytic glioma with an *IDH1* or *IDH2* mutation that exhibits focal or dispersed anaplasia and displays significant mitotic activity · Microvascular proliferation, necrosis, and homozygous deletions of *CDKN2A* and/or *CDKN2B* are absent
CNS WHO grade 4	· A diffusely infiltrative astrocytic glioma with an *IDH1* or *IDH2* mutation that exhibits microvascular proliferation or necrosis or homozygous deletion of *CDKN2A* and/or *CDKN2B*, or any combination of these features

Homozygous loss of CDKN2A/B, in the absence of grade 4 histology, is sufficient to “upgrade” a tumour into Gr4


Glioblastoma


Palisading necrosis
Microvascular proliferation

HISTOLOGY

MOLECULAR

Essential:

An IDH-wildtype, H3-wildtype, diffuse astrocytic glioma

AND

One or more of the following:

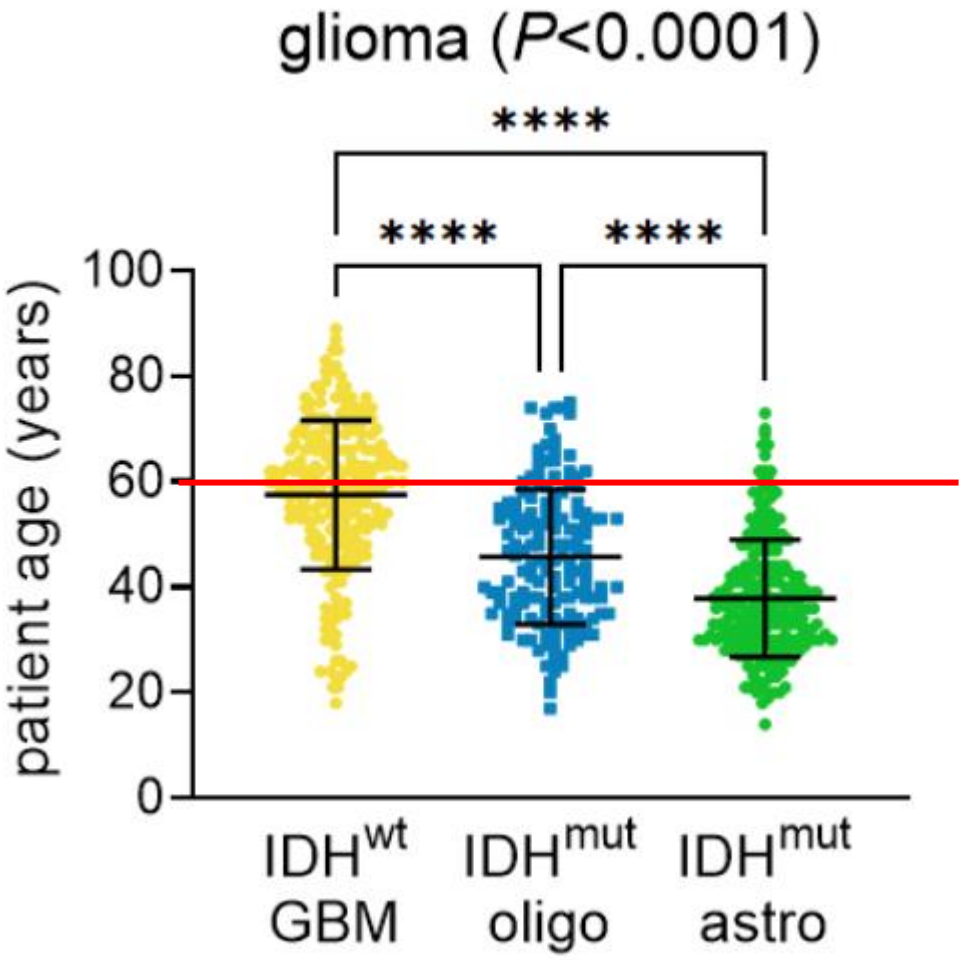
- Microvascular proliferation
- Necrosis
- *TERT* promoter mutation
- *EGFR* gene amplification
- +7/–10 chromosome copy-number alterations

Desirable:

DNA methylation profile of glioblastoma, IDH-wildtype

Challenges of current clinical workflow

NGS showed IDH2 R172H mutation
1p19q co-del



Clinical Case Discussion

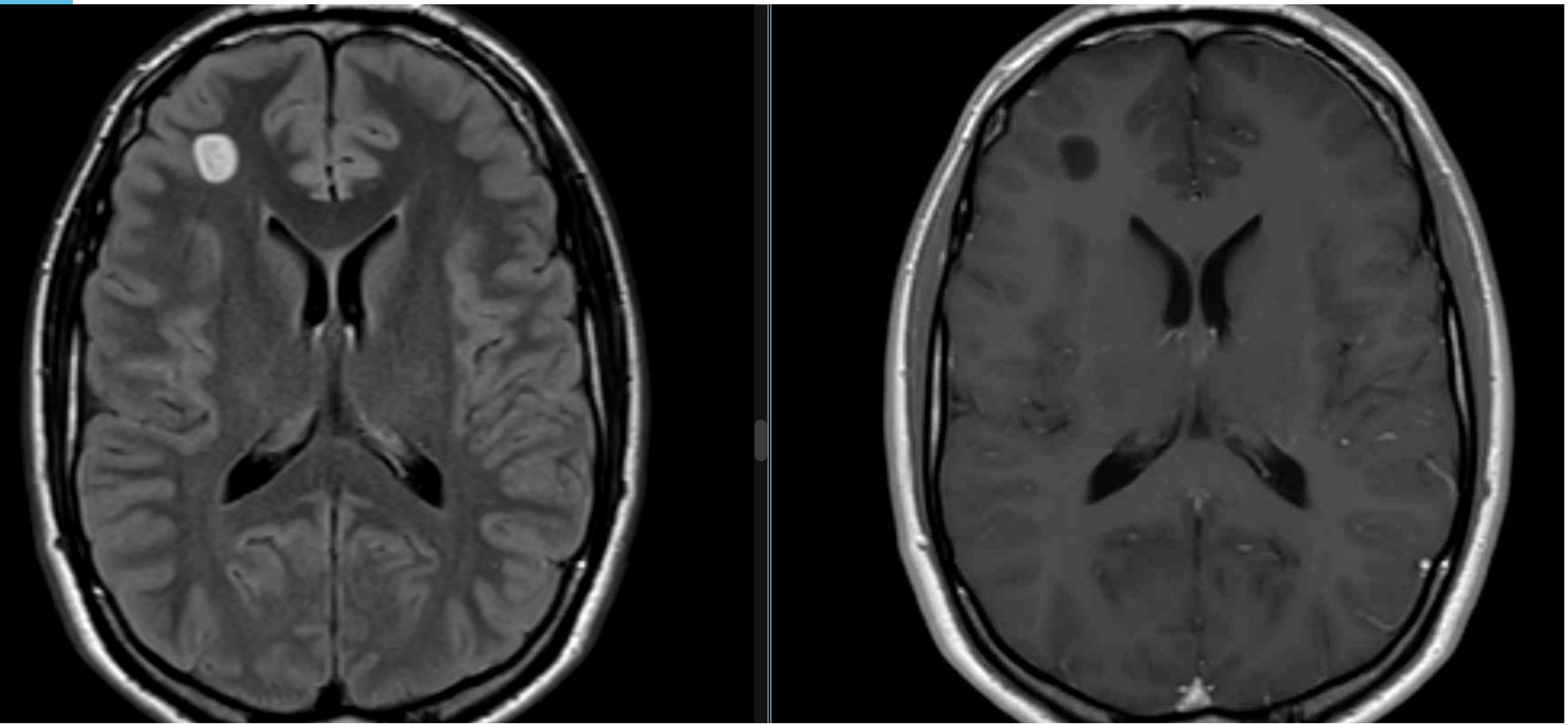
Dr. Derek Tsang
Radiation Oncology
Princess Margaret Cancer Centre

Dr. Maria MacDonald
Neuro-Oncology
London Health Sciences Centre

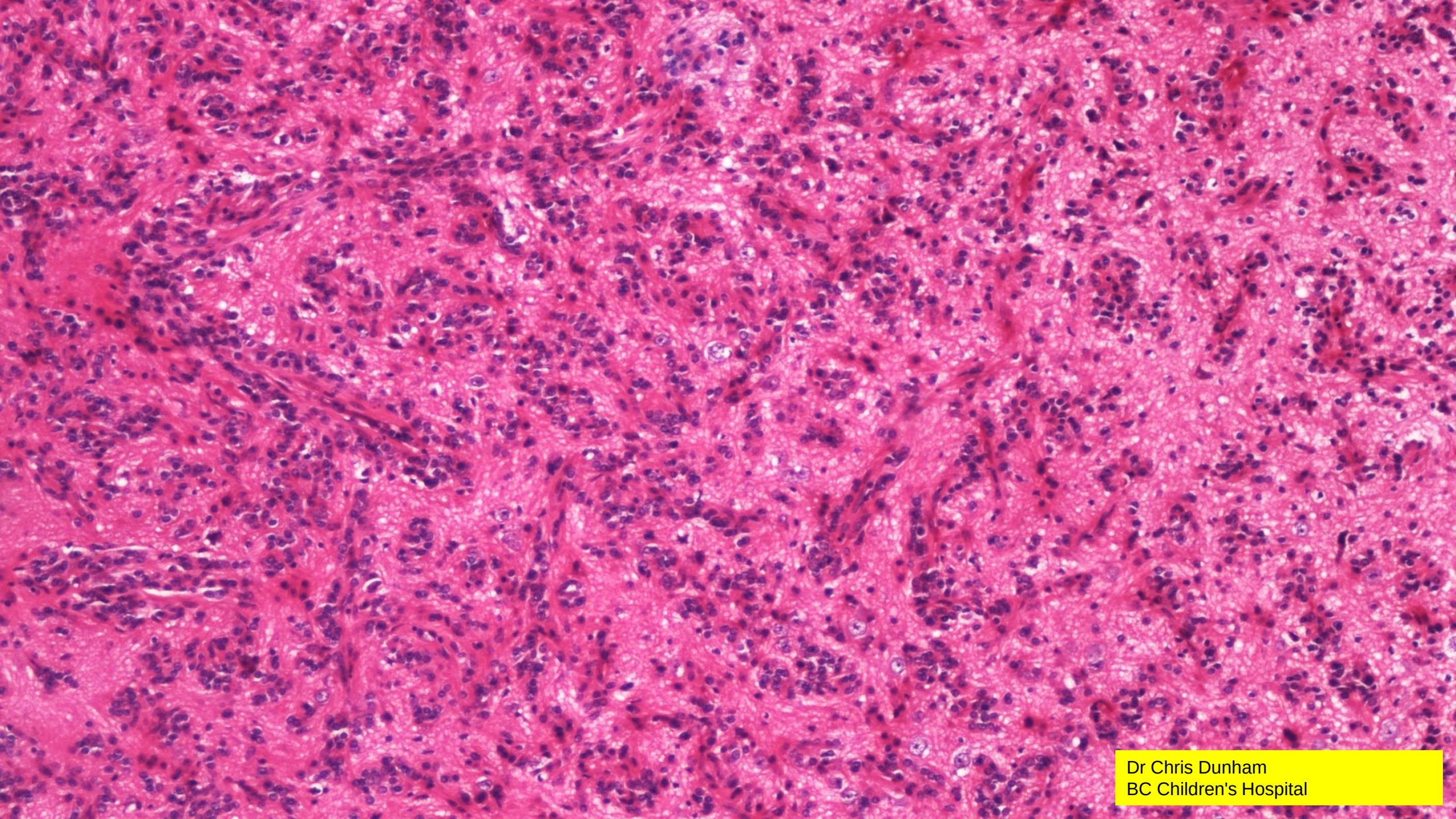
Dr. Nimish Mohile
Neuro-oncology
University of Rochester Medical Center

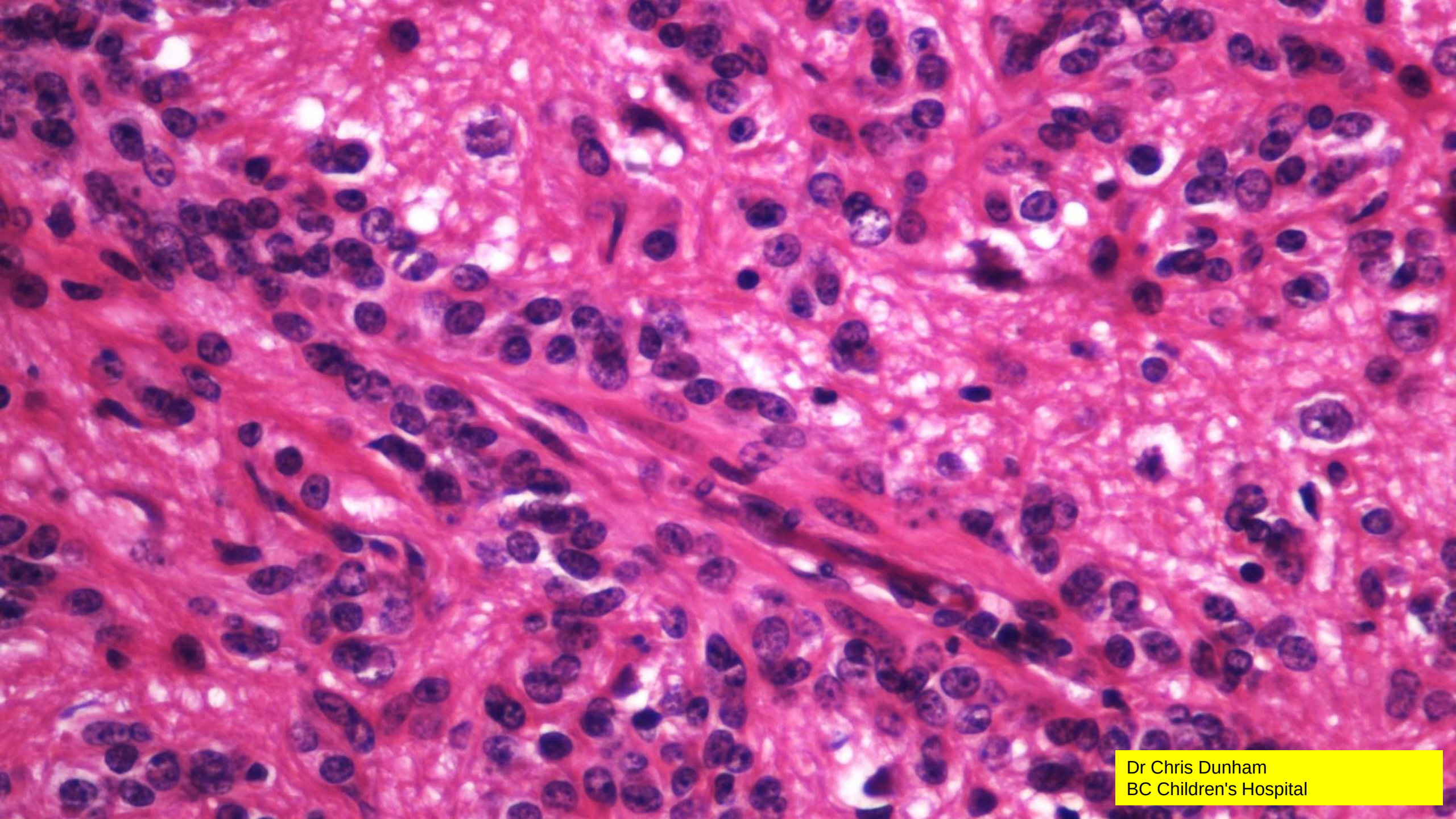
Case 1

- 31y/o M
- Presented in 2015 with headache
- Incidental right frontal lesion
- Progressive slow growth on MRI



- Taken to surgery in 2018 (GTR)
- Pathology:
  - Diffuse low-grade glioma
  - IDH wild-type by IHC and sequencing
  - 1p19q intact, ATRX retained


Dr Chris Dunham
BC Children's Hospital


Dr Chris Dunham
BC Children's Hospital

On further review of pathology:

- Perivascular arrangement of tumour cells in some regions of the lesion: query angiocentric glioma
- Tumour cells were EMA(-) and not bipolar: atypical for angiocentric glioma
- Overall DST & neuro-pathology team favoured angiocentric glioma as the diagnosis
- Molecular not available at time of diagnosis; Angiocentric glioma usually has MYB:QK1 gene fusion or MYB alteration

Take Home Message:

- An infiltrative IDH wild type glioma without microvascular proliferation and necrosis is not always a molecular GBM
- Further molecular work up is required to diagnose a molecular GBM vs a pediatric type glioma

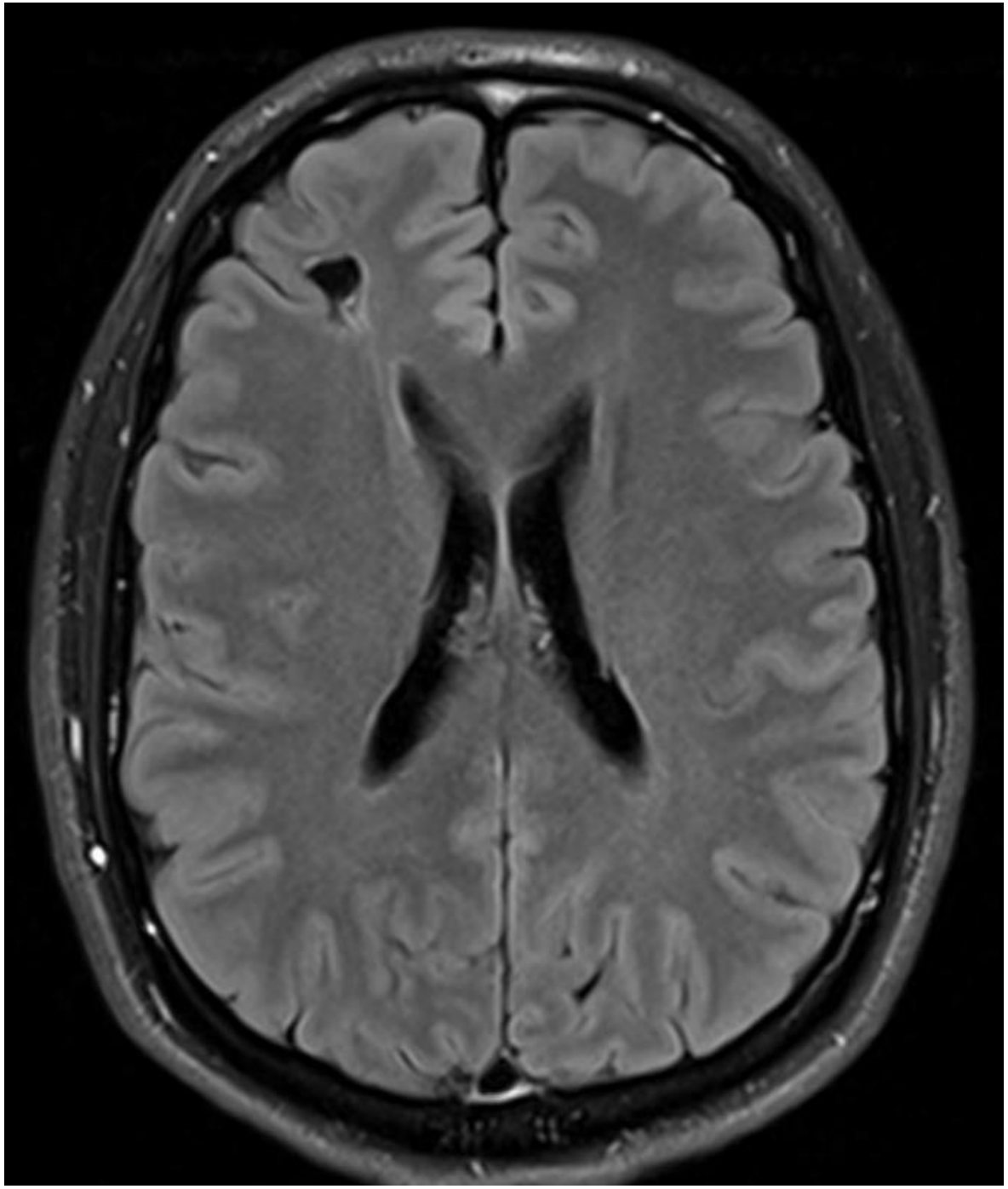
Treatment recommendation?

1. Radiation alone (60 Gy)
2. Radiation (60 Gy) and concurrent temozolomide
3. Radiation (54 Gy) and adjuvant PCV
4. Temozolomide alone
5. Observe

Treatment recommendation?

1. Radiation alone (60 Gy)
2. Radiation (60 Gy) and concurrent temozolomide
3. Radiation (54 Gy) and adjuvant PCV
4. Temozolomide alone
5. Observe

Patient was observed—no evidence of active disease as of recent imaging (2023)



Cancer Care Ontario Endorsement; ASCO-SNO Guidelines

Therapy for Diffuse Astrocytic and Oligodendroglial Tumors in Adults: ASCO–SNO Guideline

Nimish A Mohile [1], Hans Messersmith [2], Na Tosha Gatson [3 4], Andreas F Hottinger [5], Andrew Lassman [6], Jordan Morton [7], Douglas Ney [8], Phioanh Leia Nghiemphu [9], Adriana Olar [10], Jeffery Olson [11], James Perry [12], Jana Portnow [13], David Schiff [14], Anne Shannon [15], Helen A Shih [16], Roy Strowd [17], Martin van den Bent [18], Mateo Ziu [19], Jaishri Blakeley [20]

Affiliations + expand

PMID: 34898238 DOI: 10.1200/JCO.21.02036

DOI: 10.1200/JCO.21.02036

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Guideline Endorsement 9-10 Version 2

A Quality Initiative of the Program in Evidence-Based Care (PEBC), Ontario Health (Cancer Care Ontario)

An Endorsement of the ASCO-SNO Guideline on Therapy for Diffuse Astrocytic and Oligodendroglial Tumors in Adults

S. Das, L. Durocher-Allen, C. Hawkins, M. MacDonald, J. Perry, A. Sahgal and the Adult Gliomas Expert Panel

Report Date: August 9, 2022

Ontario Health
Cancer Care Ontario

In an IDH-wildtype histologically appearing low-grade astrocytoma or oligodendroglioma which lacks microvascular proliferation and necrosis there are TWO possibilities:

Molecular GBM (no MVP or Necrosis)

- TERT promotor mutation or
- EGFR amplification or
- 7 gain/10 loss chromosome copy alterations

Pediatric Glioma (Low grade and High Grade)

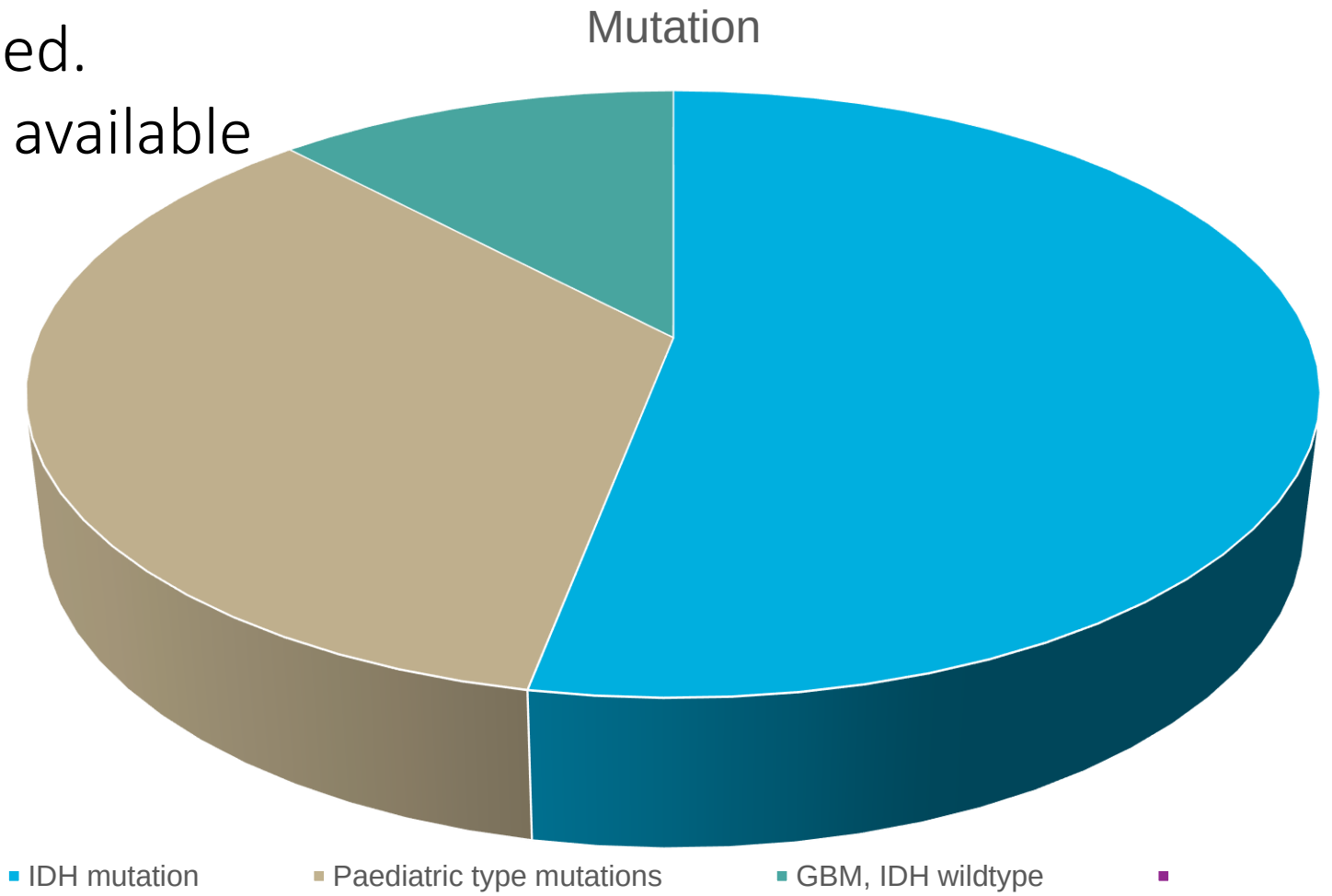
- MYB/MYBL1 fusion
- MAPK alterations such as BRAF or FGFR point mutation or fusions (targetable mutations)
- H3K27M altered or H3G34 mutated

ASCO - SNO guidelines neglected to mention pediatric type glioma as a diagnostic possibility

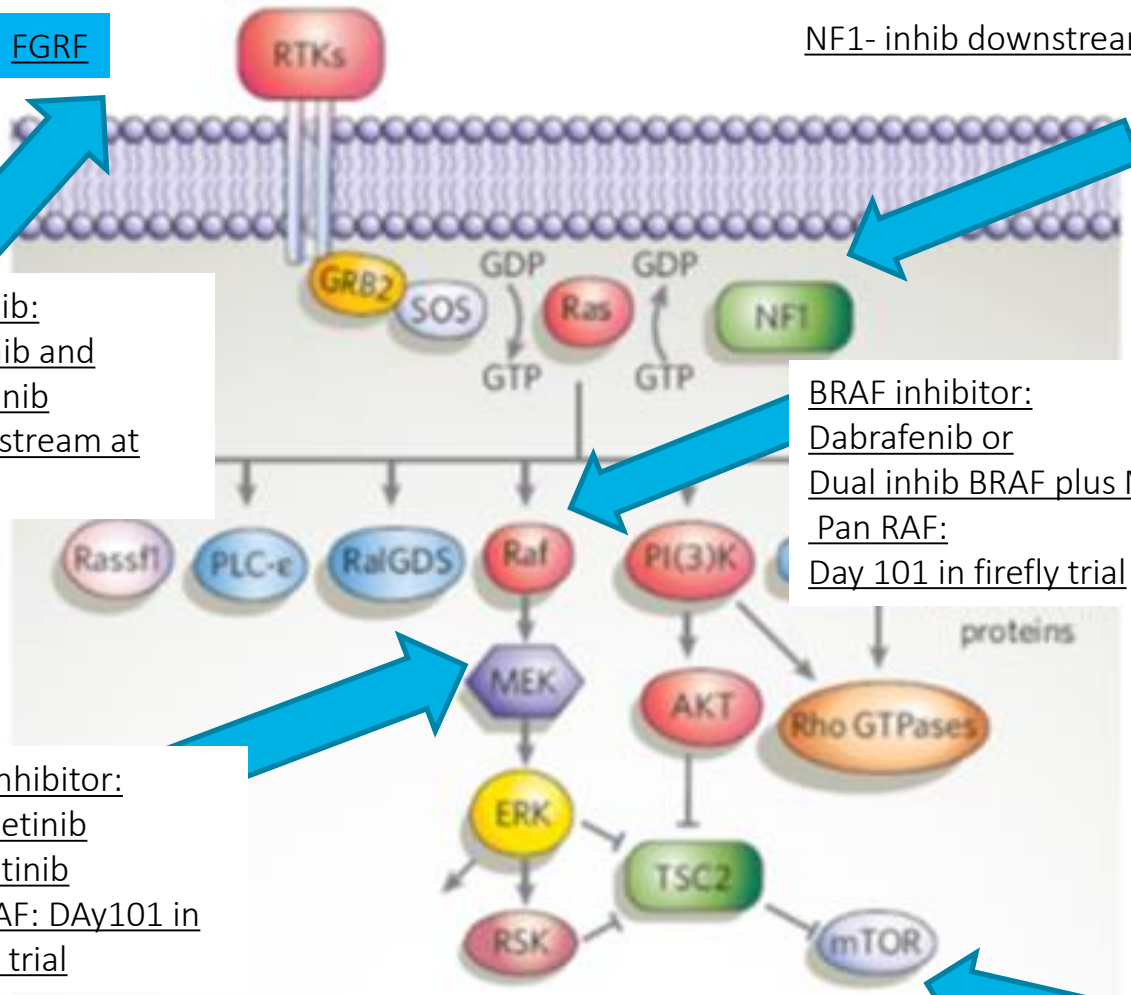
Julie Bennett, Cynthia Hawkins and
The Hospital for Sick Children Laboratory, Toronto, Ontario, Canada.

- 1900 patient ages 14-39 years old
- 876 AYA gliomas were included.
- Genetic alterations in 95% of available tumours:

-IDH mutation 53%,
-Ped-type mutations 35%
-GBM IDH Wildtype 12%.



MAPK RAS Pathway Targets



FGRF

NF1- inhib downstream at MEK

FGFR inhib:
Infigratinib and
Pemgratinib
Or downstream at
MEK

BRAF inhibitor:
Dabrafenib or
Dual inhib BRAF plus MEK,
Pan RAF:
Day 101 in firefly trial

MEK inhibitor:
Selumetinib
Trametinib
Pan RAF: DAy101 in
Firefly trial

MTOR inhib:
Everolimus, Sirolimus

Pediatric alterations (35%) in this AYA Cohort:

BRAF p.V600E (11%)

FGFR alterations (6%)

BRAF fusions (4%)

H3 p.K27M (4%)

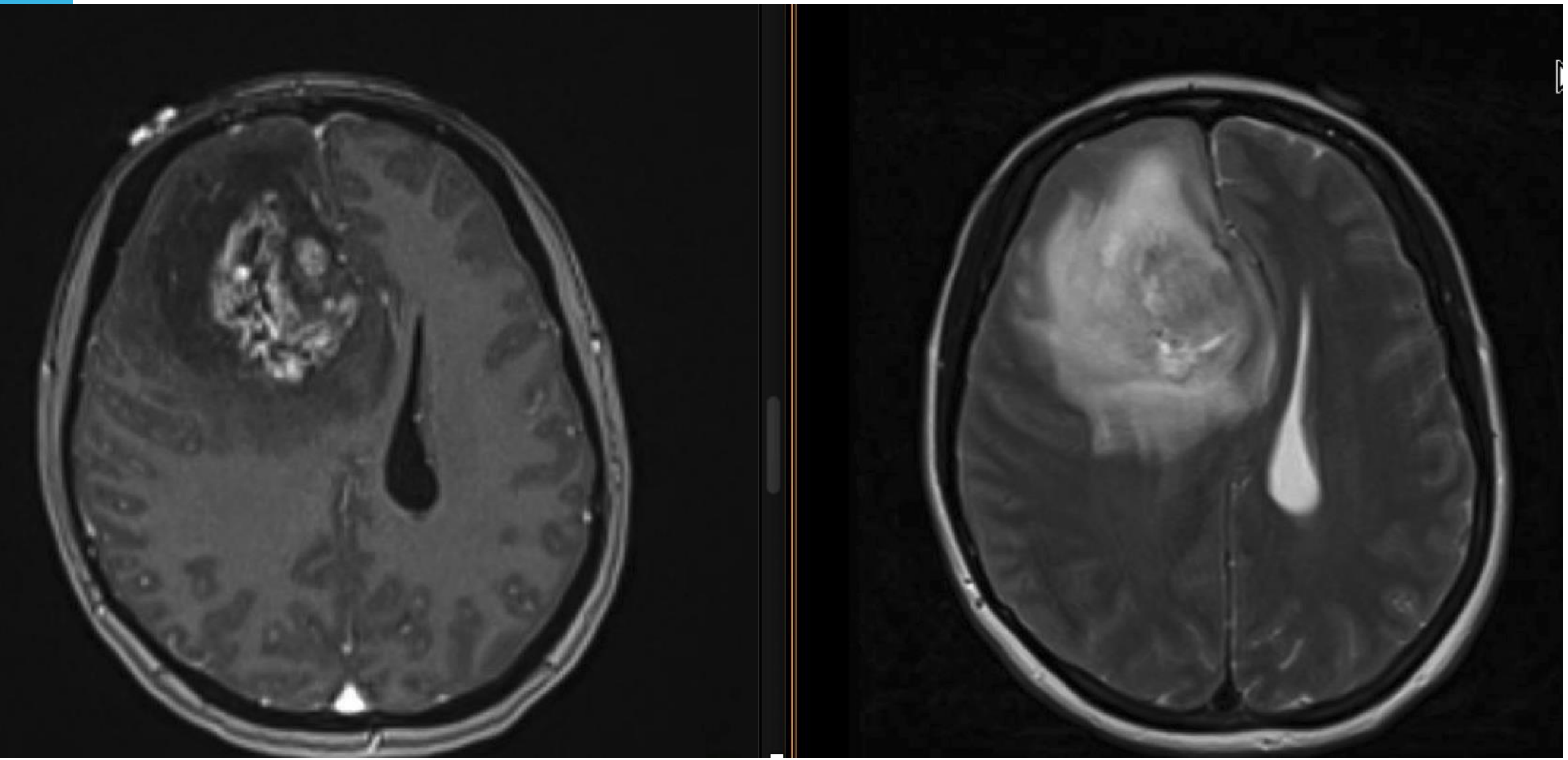
H3.3 p.G34R (1%)

Recognizing pLGG in our AYA and Older Adult Patients

- IDH wildtype
- Good prognosis; can be curable with GTR
- Can often omit **radiation and chemotherapy**
- Common **druggable molecular targets** on MAPK RAS pathway
- These pLGG are most common in children and young adults <40 years but can also occur in adults >40 years
- If your patient requires additional molecular testing for pediatric type alterations contact Dr. Cynthia Hawkins, Sick Children's Hospital----- cynthia.hawkins@sickkids

Case 2

- 50y/o female
- progressive headaches, nausea and vomiting, right leg weakness, falls
- Sent for imaging



Taken to surgery (STR). Post-operatively: ECOG 0

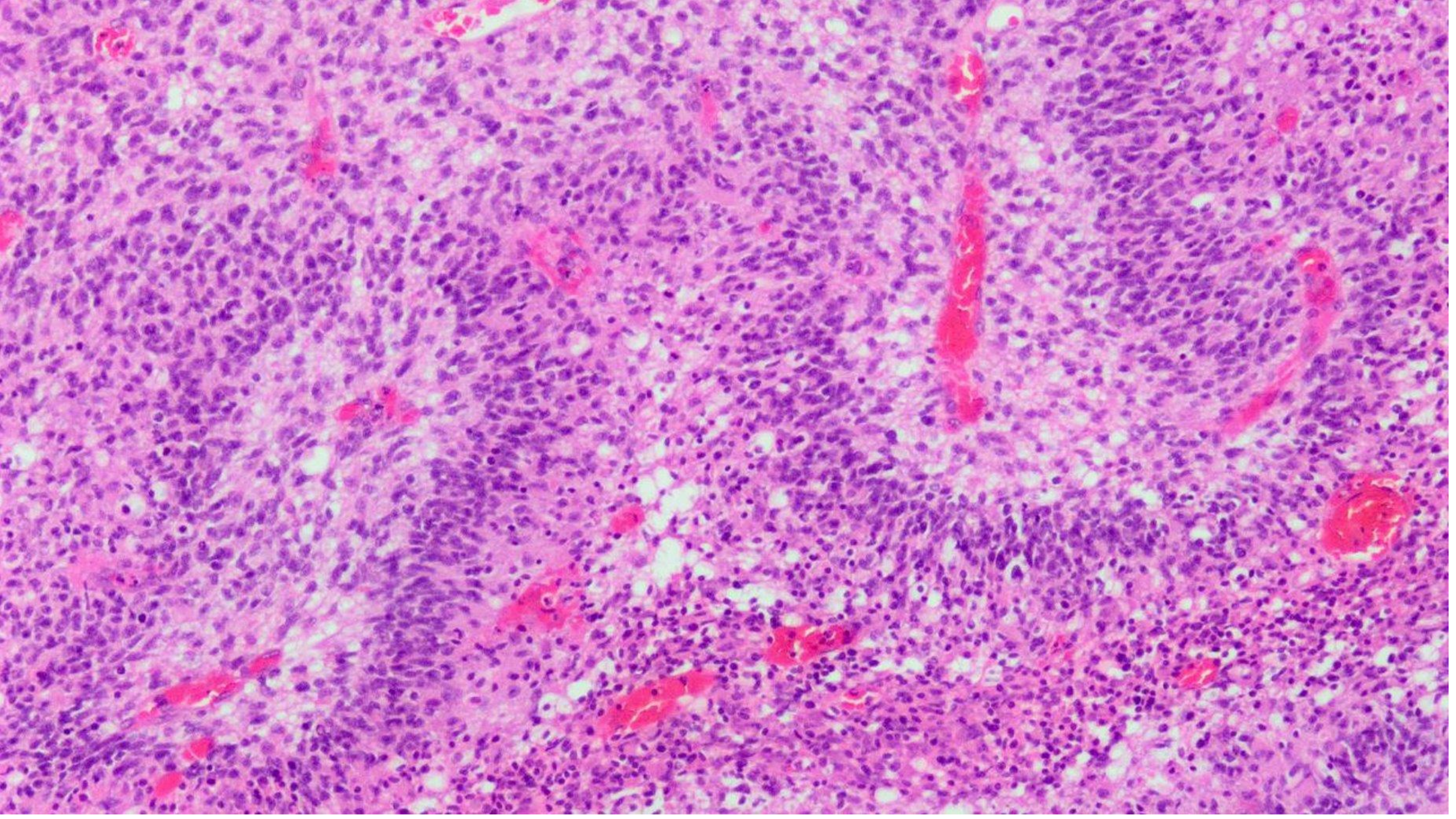
Astrocytoma, IDH-mutant, WHO grade 4

Positive for IDH p.R132H (IHC)

MGMT hypermethylation Status: Positive (MGMT methylated)

BRAF V600E negative

MIB1: 20-30%



Treatment recommendation?

1. Radiation alone (60 Gy)
2. Radiation (60 Gy) and concurrent temozolomide followed by adjuvant temozolomide
3. Radiation (60 Gy) and concurrent temozolomide
4. Radiation (59.4 Gy) and adjuvant PCV
5. Temozolomide alone

Treatment recommendation?

1. Radiation alone (60 Gy)
2. Radiation (60 Gy) and concurrent temozolomide followed by adjuvant temozolomide
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4. Radiation (59.4 Gy) and adjuvant PCV
5. Temozolomide alone

Treatment of Adult-Type Diffuse Glioma

What to do when it is time to treat;

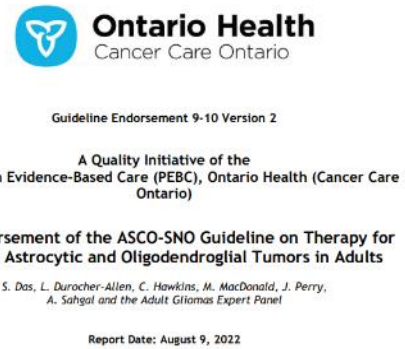
- Maximal safe resection
- Radiation (EBRT))
- AND chemotherapy
  - GIVE RADIATION AND CHEMOTHERAPY TOGETHER, NOT ONE WITHOUT THE OTHER

Chemotherapy Options;

- Temozolomide → Generally preferred for Astrocytoma
- Procarbazine, Lomustine, Vincristine (PCV) → Generally preferred for Oligodendroglioma

Treatment of Adult-Type Diffuse Glioma

- GBM, IDH-wildtype: TMZ
- Astrocytoma IDH-mutant WHO Grade 3 or 4: TMZ
  - Astrocytoma, IDH-mutant, CNS WHO Grade 3 – consider omitting concurrent TMZ (CATNON)
- Astrocytoma IDH mutated WHO grade 2: TMZ or PCV
- Oligodendroglioma: PCV or PC (TMZ can be considered if concerns of toxicity)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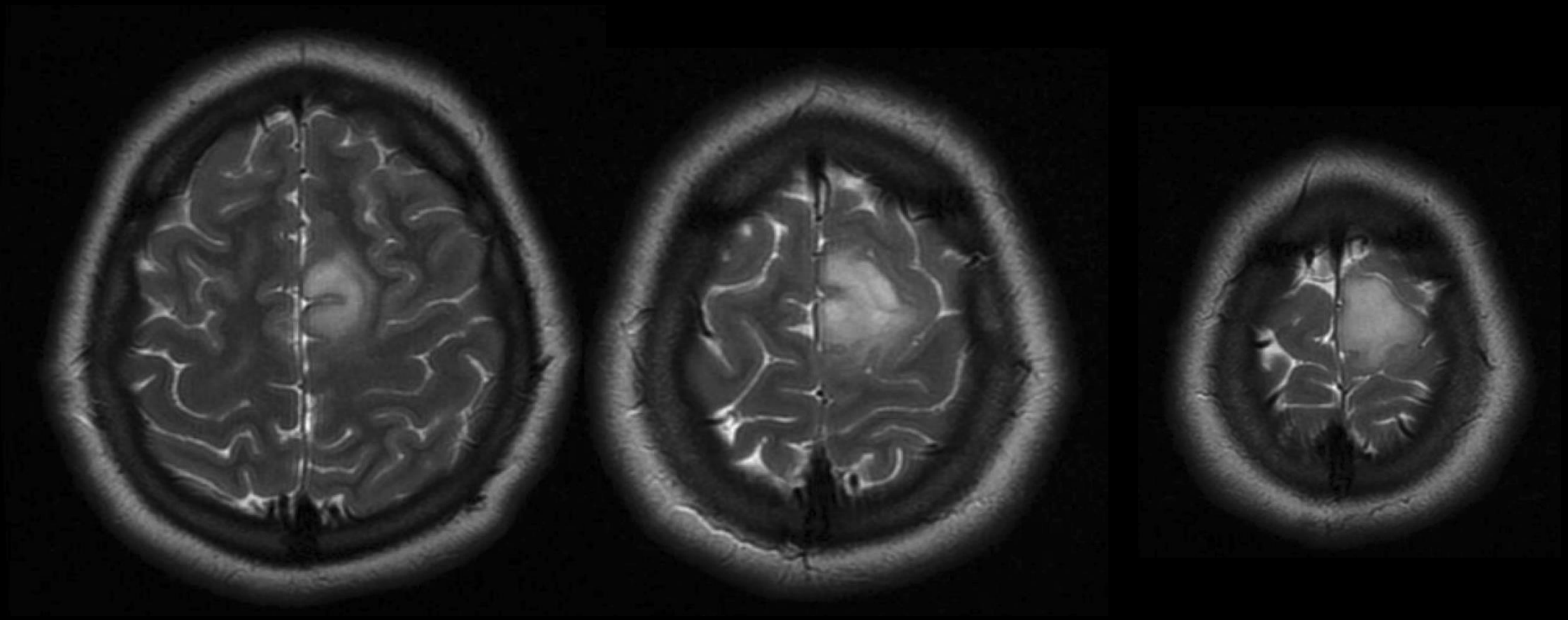
S. Das, L. Durocher-Allen, C. Hawkins, M. MacDonald, J. Perry, A. Sahgal and the Adult Gliomas Expert Panel

Report Date: August 9, 2022

Case 3

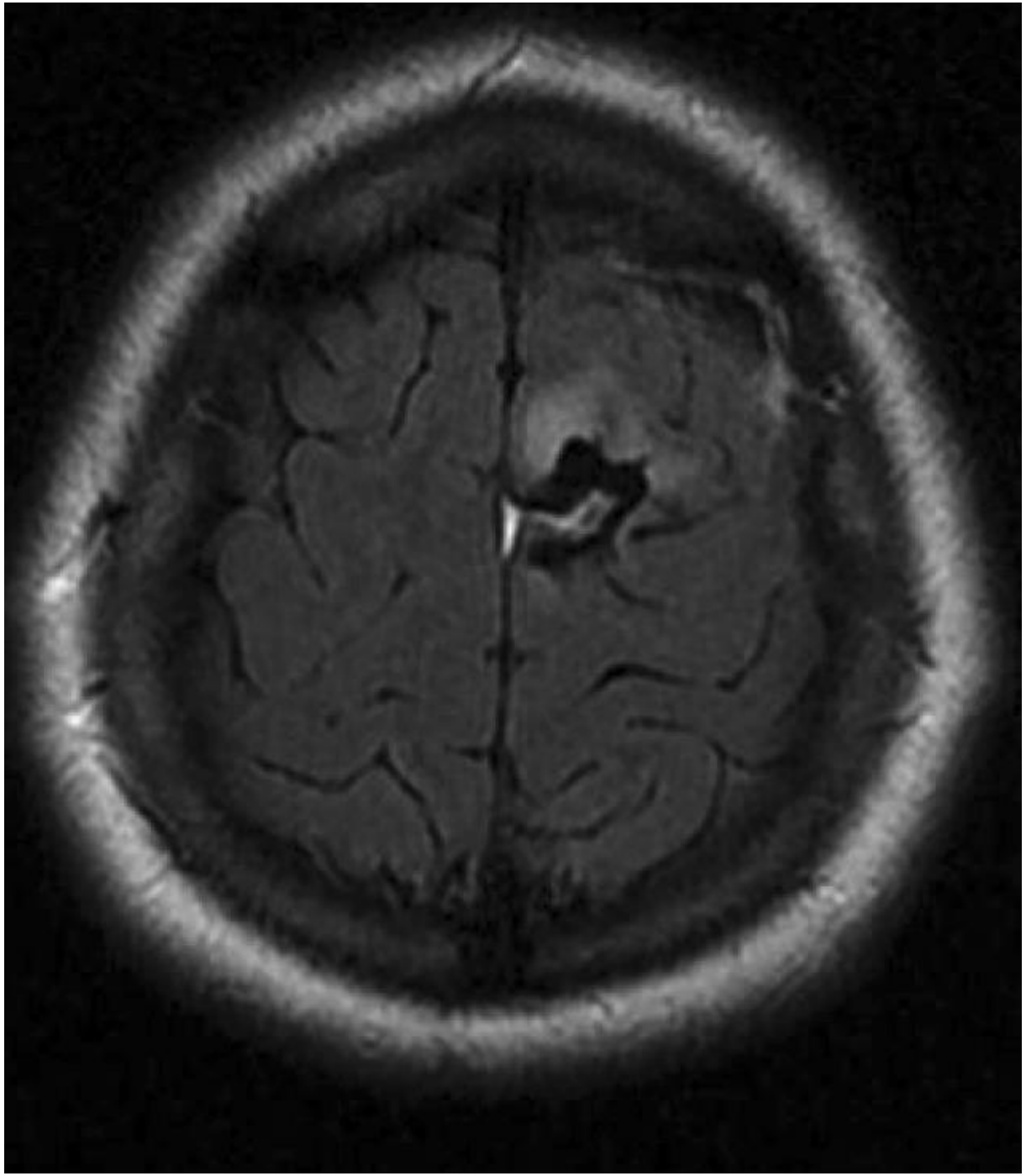
- 18y/o female
- Presented with a head injury
- CT head showed and incidental left frontoparietal lesion



Case 3

Taken to surgery (STR). ECOG 0

Integrated Diagnosis:
Oligodendroglioma, IDH-mutant and 1p/19q-codeleted, WHO grade 2



Treatment recommendation?

1. Observation
2. Radiation alone (54 Gy)
3. Radiation (54 Gy) and concurrent and adjuvant monthly temozolomide
4. Radiation (54 Gy) and PCV
5. Temozolomide alone

Treatment recommendation?

1. Observation
2. Radiation alone (54 Gy)
3. Radiation (54 Gy) and concurrent and adjuvant monthly temozolomide
4. Radiation (54 Gy) and PCV
5. Temozolomide alone

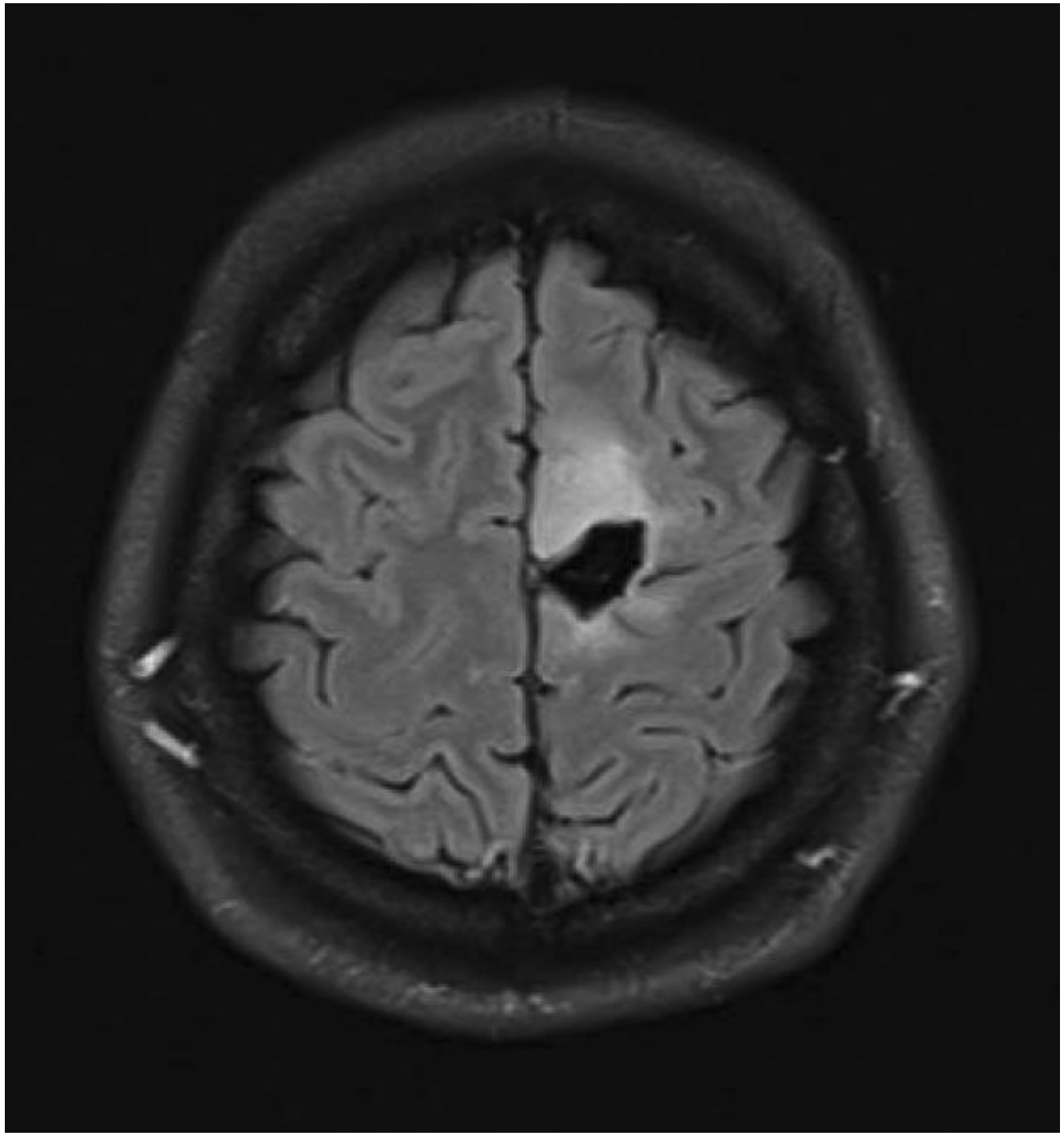
Deferring Treatment; Grade 2 Oligo and Astro

- Initial therapy may be deferred until radiologic or symptomatic progression in some people with positive prognostic factors
  - Complete resection and young age (<40)

    (based on exclusion criteria for RTOG 9802)
- Observation following incomplete resection is outside of the guidelines but can be considered such as in this case

Patient underwent **observation**

Growth at MRI 45 months:



Treatment recommendation?

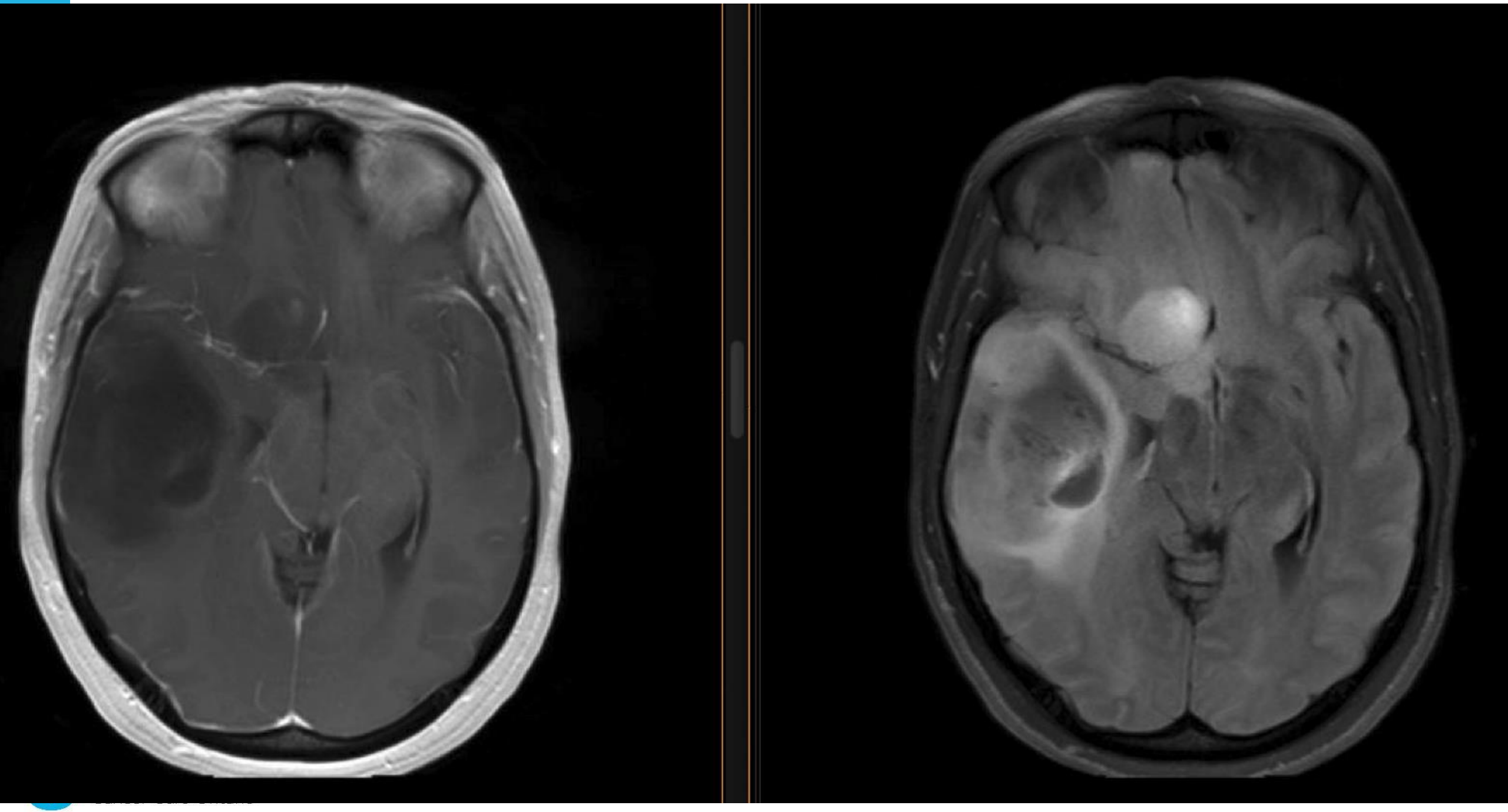
1. Radiation alone (54 Gy)
2. Radiation (54 Gy) and concurrent and adjuvant monthly temozolomide
3. Radiation (54 Gy) and PCV
4. Temozolomide alone
5. PCV alone
6. Continued observation

Treatment recommendation?

1. Radiation alone (54 Gy)
2. Radiation (54 Gy) and concurrent and adjuvant monthly temozolomide
3. Radiation (54 Gy) and PCV
4. Temozolomide alone
5. PCV alone
6. Continued observation

Case 4

- 42y/o female
- Presented with headaches, diplopia and left lower limb weakness
- diplopia and papilledema on ophthalmologic exam



Case 4

Taken to surgery (STR). ECOG 0.

Astrocytoma, IDH R132H mutant, 1p19q intact, WHO grade 3

Treatment recommendation?

1. Radiation alone
2. Radiation and adjuvant PCV
3. Radiation and concurrent + adjuvant temozolomide
4. Radiation and concurrent temozolomide only
5. Radiation and adjuvant temozolomide only

Treatment recommendation?

1. Radiation alone
2. Radiation and adjuvant PCV
3. Radiation and concurrent + adjuvant temozolomide
4. Radiation and concurrent temozolomide only
5. Radiation and adjuvant temozolomide only

CATNON

Adjuvant and concurrent temozolomide for 1p/19q non-co-deleted anaplastic glioma (CATNON; EORTC study 26053-22054): second interim analysis of a randomised, open-label, phase 3 study

Martin J van den Bent, C Mircea S Tesileanu, Wolfgang Wick, Marc Sanson, Alba Ariela Brandes, Paul M Clement, Sarah Erridge, Michael A Vogelbaum, Anna K Nowak, Jean Français Baurain, Warren P Mason, Helen Wheeler, Olivier L Chinot, Sanjeev Gill, Matthew Griffin, Leland Rogers, Walter Taal, Roberta Rudà, Michael Weller, Catherine McBain, Jaap Reijneveld, Roelien H Enting, Francesca Caparrotti, Thierry Lesimple, Susan Clenton, Anja Gijtenbeek, Elizabeth Lim, Ulrich Herrlinger, Peter Hau, Frederic Dhermain, Iris de Heer, Kenneth Aldape, Robert B Jenkins, Hendrikus Jan Dubbink, Johan M Kros, Pieter Wesseling, Sarah Nuyens, Vassilis Golfinopoulos, Thierry Gorlia, Pim French, Brigitta G Baumert

INCLUSION: Phase 3 RCT patients aged 18 years or older with newly diagnosed Astrocytoma, IDH mutated, WHO grade 3 and a WHO performance status of 0–2

TREATMENT ARMS: 1. RT alone (59·4 Gy/33 fractions); 2. RT with concurrent TMZ (75 mg/m^2 per day); 3. RT with adjuvant TMZ (12 4-week cycles of 150–200 mg/m^2 TMZ given on days 1–5); 4. RT with both concurrent and adjuvant TMZ.

RESULTS:

- Treatment with concurrent TMZ had no effect on OS regardless of IDH status
  - tail of benefit for IDH mutated…needs time to mature for the 2024/2025 analysis
- Adjuvant TMZ improved OS overall
  - But when broken down by IDH status ONLY the IDH mutated group had benefit

IDH-mutant tumours

<u>OS: concurrent vs. no concurrent TMZ</u>

No difference (p=0.17)

but long tail….

<u>OS: adjuvant vs. no adjuvant TMZ</u>

Significant advantage for treated group(p=0.001)

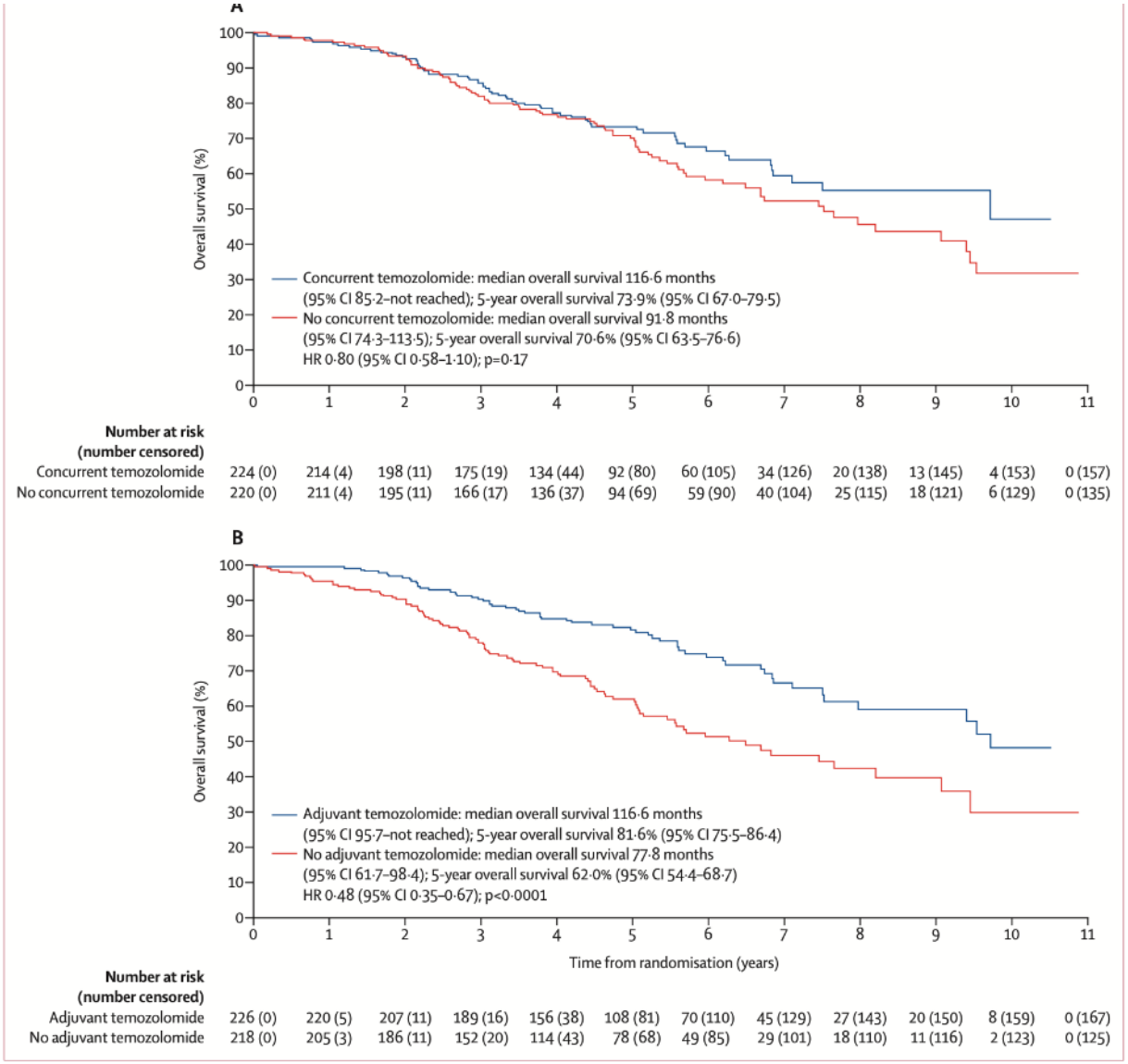
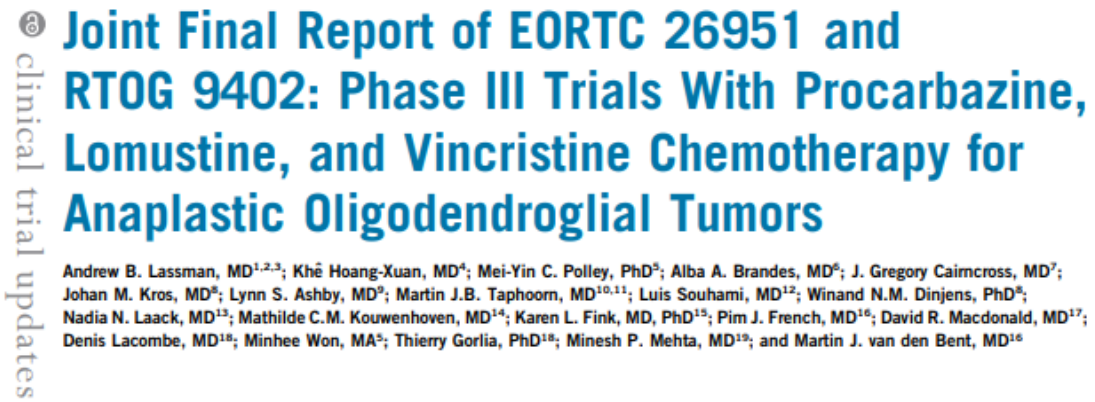


Figure 4: **Univariable analysis of overall survival in patients with *IDH1* or *IDH2* mutant tumours**
(A) Patients who received concurrent temozolomide versus those who did not. (B) Patients who received adjuvant temozolomide versus those who did not.

TMZ preferred for Astrocytoma, IDH mutated, 1p19q non-codeleted, WHO grade 3

PCV plus RT vs RT alone


clinical trial updates

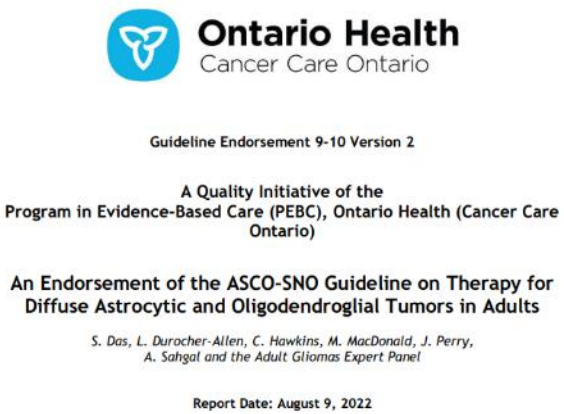
Joint Final Report of EORTC 26951 and RTOG 9402: Phase III Trials With Procarbazine, Lomustine, and Vincristine Chemotherapy for Anaplastic Oligodendroglial Tumors

Andrew B. Lassman, MD[1,2,3]; Khê Hoang-Xuan, MD[4]; Mei-Yin C. Polley, PhD[5]; Alba A. Brandes, MD[6]; J. Gregory Cairncross, MD[7]; Johan M. Kros, MD[8]; Lynn S. Ashby, MD[9]; Martin J.B. Taphoorn, MD[10,11]; Luis Souhami, MD[12]; Winand N.M. Dinjens, PhD[8]; Nadia N. Laack, MD[13]; Mathilde C.M. Kouwenhoven, MD[14]; Karen L. Fink, MD, PhD[15]; Pim J. French, MD[16]; David R. Macdonald, MD[17]; Denis Lacombe, MD[18]; Minhee Won, MA[5]; Thierry Gorlia, PhD[18]; Minesh P. Mehta, MD[19]; and Martin J. van den Bent, MD[16]

- Only modest benefit in OS for astrocytoma grade 3
- Inferior toxicity profile to TMZ
- Larger OS benefit for astrocytoma grade 2 (RTOG 9802) but less than oligodendroglioma
- Greatest benefit in OS when PCV is added to RT vs RT alone for oligodendroglial tumours (both grade 2 and 3)

Treatment of Astrocytoma, IDH-mutant, 1p19q non-codeleted CNS WHO grade 3

- **ASCO/SNO: Astrocytoma, IDH-mutant, 1p19q non-codeleted CNS WHO grade 3: RT with adjuvant TMZ**
- **CCO Modification:**
  - **Could consider RT with concurrent and adjuvant Temozolomide (awaiting CATNON final analysis)**


Ontario Health
Cancer Care Ontario

Guideline Endorsement 9-10 Version 2

A Quality Initiative of the
Program in Evidence-Based Care (PEBC), Ontario Health (Cancer Care Ontario)

An Endorsement of the ASCO-SNO Guideline on Therapy for Diffuse Astrocytic and Oligodendroglial Tumors in Adults

S. Das, L. Durocher-Allen, C. Hawkins, M. MacDonald, J. Perry, A. Sahgal and the Adult Gliomas Expert Panel

Report Date: August 9, 2022

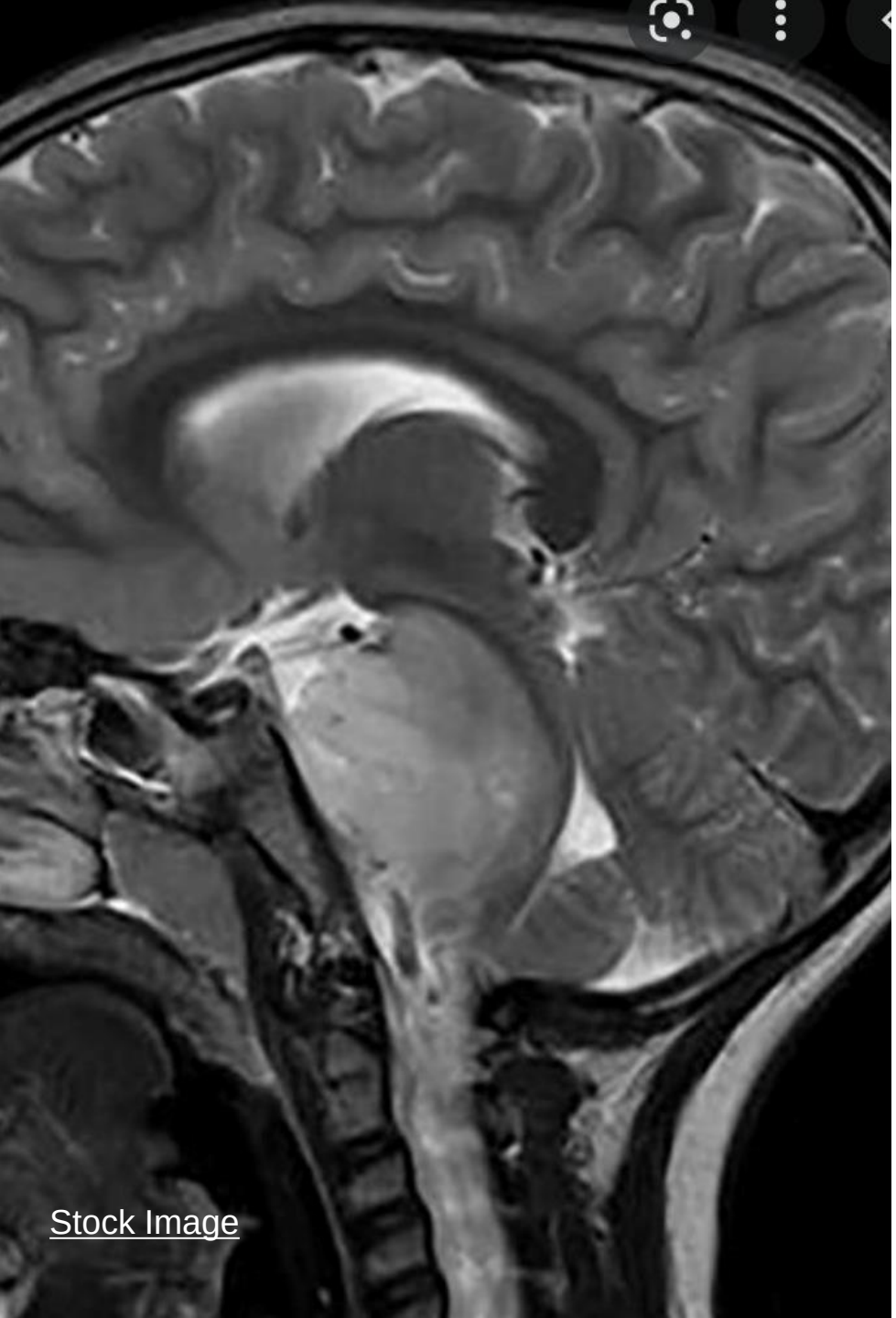
Final Recommendations

Newly diagnosed glioblastoma in patients who are older, with poor function or for whom toxicity is a concern

- Hypofractionated RT plus concurrent and adjuvant TMZ (CE6) with good performance status
- In patients age >60 to 70 years, with poor performance status or for whom toxicity or prognosis are concerns (Rao, Nordic, NoA08)
  - Best supportive care alone
  - Hypofractionated (short-course)
  - RT alone for MGMT promoter unmethylated tumors
  - TMZ alone for MGMT promoter methylated tumors

GBM Progressive/Recurrent

- No treatments that improve OS, no established standard of care
  - Consider clinical trials→ Important, given lack of treatment efficacy
  - Temozolomide rechallenge (RESCUE trial)
  - Lomustine alone or lomustine plus bevacizumab for large enhancing disease (Belob Phase 2, Wick Phase 3)
- Not in Guideline:
  - Consider second surgery
  - Consider re-irradiation (RTOG 1205, PFS but no OS benefit)
  - Tumour Treatment Fields (EF-11)



Lastly, No recommendation for or against any therapeutic strategy can be made for treatment of diffuse midline glioma

CCO Modification:

-Urgent radiation oncology consult

-Consider referral to clinical trial

Tissue diagnosis Diffuse Midline Glioma, H3 K27 altered;

- search for targetable mutations (MAPK pathway, MTOR pathway) or EGFR and high tumour mutation burden.

Closing Remarks and Next Steps

Dr. Sunit Das
Ontario CNS Cancers Lead
Disease Pathway Management Program, OH(CCO)

Next Steps

- Webinar slides will be shared with all registered participants
- An evaluation form will be sent to all webinar participants
  - Please complete and submit the evaluation form to Spencer.MacDonald@ontariohealth.ca and Michelle.Lee@ontariohealth.ca to qualify for MOC credits
- Any questions regarding the webinar can be sent to:

Dr. Sunit Das, Ontario CNS Cancers Lead, Disease Pathway Management Program, OH(CCO) Sunit.Das@utoronto.ca

Amber Hunter, Manager, Disease Pathway Management Program, OH (CCO) Amber.Hunter@ontariohealth.ca

Spencer MacDonald, Specialist, Disease Pathway Management Program, OH (CCO) Spencer.MacDonald@ontariohealth.ca

Molecular Testing Contact

- If your patient requires additional molecular testing for pediatric type alterations contact Dr. Cynthia Hawkins, Sick Children's Hospital----- cynthia.hawkins@sickkids.ca