

INCTR International Network for Cancer Treatment and Research







Impact of second opinion using telepathology to support childhood cancer diagnosis in Africa

A Coulomb¹, B Lebwaze², V kyabu kabila³, J Ilunga⁺³, F Foerster⁴, C Traore⁵, NS Randrianjafisamindrakotroka⁶, B Moulaye Elhassen⁷, I Abbes⁸, K Mrad⁸, S Koui⁹, B Doukoure¹⁰, A Traore¹¹, R Kassa¹², C Dial¹³, A Sall¹⁴, A Toure¹⁵, B Nkegoum¹⁶, N Hurwitz¹⁷, E Auberger¹⁸, M Raphaël¹⁹

Telepathology platform i-Path/INCTR

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iPath

Language

English 🔹

Enguerrand20

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iPath

Home Discussion groups

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presentations

Site statistics

Active users: 5714

INTERNATIONAL NETWORK FOR CANCER TREATMENT AND RESEARCH (INCTR) COMMUNITY ON IPATH

WE SUPPORT PATHOLOGY AND HEMATOLOGY IN LOW RESOURCE COUNTRIES AND REMOTE PLACES BY PROVIDING ONLINE CONSULTATIONS AND TRAINING

"we speak about the loneliness of a long distance runner, but there may be no one more lonelier than a surgical pathologist working solo ... easy access to consultation is a prerequisite for accurate diagnosis and accordingly for optimal patient care"

Stephen Sternberg Surgical Pathology preface to the first ed. 1989

The aim of this site is to alleviate the "loneliness of surgical pathologists working solo", by providing a platform for second opinions.

Currently active groups

Pathology, Australia Haematology Group, Coordination: Wendy Erber

Pathology, Indian and Pacific Ocean Rim Hematology Group, Coordination: Wendy Erber

EBMWG Hematopathology Online

A platform for discussion and second opinions for Hematopathology Cases. Coordination: J.Van Der Walt Emeritus Consultant, Dept of Histopathology, St Thomas' Hospital, London, A.Tzankov Insitute of Pathology, University of Basel, Basel, Switzerland,

Pathology, Anglophone Africa, Coordination: N.Hurwitz

Pathology, Francophone Africa, Coordination: M.Raphael

Pathology, Liverpool International Pathology Partnership, Coordination: Tim Helliwell

Clinical Oncology Consultations in clinical oncology can be submitted as a pilot. *Coordination: N.Hurwitz*

Demo Cases

For a first glance at ipath, platform for consultation discussion and teaching for health professionals, click here

Telepathology platform i-Path/INCTR

- Since 2009
- Open source platform
- To improve cancer diagnosis accuracy
- Second opinion
- The final diagnosis comes from the local pathologist
- International Network for Cancer Research

Telepathology



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i-Path platform

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Telepathology platform i-Path/INCTR

- Microscopes with digital camera were set-up by AMCC and GFAOP
- Connected to the i-Path/INCTR platform
- 11 French speaking African countries
- Initiated by the pathology program of AMCC in 2009
- Connected to the "Groupe Franco Africain d'Oncologie Pédiatrique" (GFAOP) Pathology Committee in 2017







Hematology Lab, Le Dantec Hospital, Dakar

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GFAOP Pathologists committee

- Since 2017, 23 pathologists
- 10 French-speaking Sub Saharan African and 3 Maghreb countries
- To develop interregional collaborations



Aims of the GFAOP Pathologists committee

- To train pathologists
- To report childhood cancers diagnosis according to the WHO criteria for patients enrolled in PODC/SIOP protocols
- To involve African pathologists in research and publications

Analysis and items of this experience of telepathology in French speaking Africa

To report our experience (2009 – 2020) using iPATH platform for second opinion of childhood cancers diagnosis

- ✓ Number of countries and number of cases per country
- ✓ Tumour localization
- ✓ Type of submitted material (cytology, histology)
- Clinical/imaging/pathology information
- ✓ Number of pathologists participating to the discussions
- ✓ Time frame response
- Added value evaluation of telepathology using iPATH platform

Results

- N = 189 pediatric cases
- Age:
 - Mean:
 - Range: 1m 17yo
- 12 countries, 15 centers
- 2 to 110 cases/country

Numbers of cases per country



Tumour localization



Type of samples



Clinical information

| Absent | 0 |
|---------------|---|
| Insufficient | 1 |
| Sufficient | 2 |
| Very detailed | 3 |



Submitted images

Number images



Submitted imaging







Cytology



Peripheral blood and bone marrow, blast cells showing abundant granular cytoplasm with perinuclear clearing or hofs acute myeloid leukemia with t(8;21)(q22;q22) This category of leukemia is usually associated with a good response to chemotherapy Do you have any contact with the UP of GFAOP for this child

Histology



Nephroblastoma



Retinoblastoma





Rhabdoïd tumour

Number of submitted microphotographs



Mean of HES pictures = 6, range : 2-26 Mean of MGG pictures = 14, ranges : 1-168

Complementary technics



Urgent need to set up complementary techniques (IHC, flux cytometry....)

Number of pathologists involved in the Number of discussions for each case



The majority of cases were shown by 1 to 4 pathologists

Number of pathologists

Discussion with 5 pathologists from north-West Africa, central Africa and Madagascar

Site statistics

Active users: 5714 Groups: 238 Server statistics





| Annotations » Ad | ld comment | |
|---|--|--------------------------------|
| eauberger 2019-04-03 21:04 | Merci beaucoup pour ces belles images et ce dossier représentatif. Très belle technique. | |
| beevenslebwaze 2019-04-04 09:19 | Mille mercis et j'attends vos commentaires (pour nous: ostéosarcome conventionnel riche en cellules géantes: tumeur de haut grade). | Paris |
| Enguerrand20 2019-04-04 12:21 | Sur cette biopsie chirurgicale, je serais partante pour un ostéosarcome conventionnel ostéoblastique. L'âge et la localisation concordent. Avez-vous les données de la radio ?J'interprète toujours une biopsie d'une tumeur osseuse avec l'imagerie : localisation de la tumeur (épiphyse, métaphyse, diaphyse), taille de la tumeur, lésion lytique/condensante, extension dans les tissus mous, localisée ou métastatique (poumons) | DRC Cameroon Ivory coast |
| NKEGOUM2 2019-04-07 18:31 | C EST UN OTEOSARCOME. LES CAS QUE J AI SOUVENT OBSERVES SONT SOUVENT TRES CELLULAIRE | |
| baumane 2019-04-08 16:23 | il s'agit d'un ostéosarcome conventionnel ostéoblastique | |
| beevenslebwaze 2019-04-08 23:37 | Merci à tous de vos commentaires enrichissants. Pour les compléments d'informations, nous attendons avoir tous ces détails pour vous les communiquer. C'est qui est sûr, ce que c'est un ostéosarcome conventionnel (tumeur de haut grade). | |
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» Add comment

Time frame response



Example: time frame : 14mn



Typical Burkitt lymphoma: real time response and utility for educational program

Evaluation of added value of telepathology for second opinion diagnosis

- Diagnosis accuracy was evaluated according to
 - the number of suitable cases for analysis among all submitted cases, diagnostic or suggestive of the final diagnosis but requiring complementary techniques to access to the final diagnosis
- Discordant diagnosis was evaluated as different diagnosis between the local and ePath
- Non-suitable cases for analysis were defined as:
 - Inadequate quality of technical procedures or
 - Inadequate quality of pictures

Added value of telepathology



Suitable cases :

- Concordant accurate diagnosis
- Proposed diagnosis requiring complementary techniques
- Discordant diagnosis

Non-suitable cases :

Poor quality of pictures

Poor quality of technique

Conclusion

Telepathology platform i-Path/INCTR was initiated

✓ To create exchanges between pathologists from different countries of French speaking Africa particularly those with very low number of pathologists

 To help in establishing a consistently accurate diagnosis, offering a chance to African children to be promptly and adequately treated according to SIOP/PODC protocols

Conclusion

- The i-Path/INCTR platform allowed
 - Concordant accurate diagnosis : 60%
 - Discordant diagnosis : 8%
 - Proposed diagnosis requiring confirmation by complementary techniques (eg small blue round cell tumours) : 22%
- No diagnosis in 10%
 - Poor quality of pictures : 3%
 - Poor quality of technical processes : 7%
- Short time frame response : 70% in < 24 h

Perspectives

- Trained and skilled pediatric pathologists and hematopathologists to cover LMICs
- To develop telepathology using WSI
- To create reference centre in order to set up a network
- a network for diagnosis in Africa
- To develop e-learning as a project of pathology educational program via the Ecole Africaine d'Oncologie Pédatrique EAOP and GFAOP

Acknowledgments

AMCC

Martine Raphaël



Pathologists from French speaking African Countries and France

GFAOP committee of Pathology Elisabeth Auberger Aurore Coulomb



INCTR International Network for Cancer Treatment and Research Ian Magrath Nina Hurwitz

INCTR International Network

for Cancer Treatment and Research

Special acknowledgment to prof Liliane Boccon Gibod⁺ from Paris and prof Julien Ilunga⁺ from Lubumbashi who encouraged us to start this experience

Hematology Lab, Le Dantec Hospital, Dakar

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