**README file for an incidental meningioma data set and supplementary material submitted to the Liverpool Data Catalogue**

GENERAL INFORMATION

**Data should only be used for non-commercial research purposes and is not intended for diagnostic or prognostic clinical use.**

**1. Title of Dataset:**

Longitudinal radiological and clinical data for a retrospective cohort of patients with incidental asymptomatic meningioma

**2. Authors Information:**

Abdurrahman I. Islim1, 3, Ruwanthi Kolamunnage-Dona1, Midhun Mohan2, 3, Richard D.C. Moon2, 3, Anna Crofton3, Brian J. Haylock4, Nitika Rathi5, Samantha J. Mills6, Andrew R. Brodbelt3 & Michael D. Jenkinson1, 3

1. Institute of Translational Medicine, University of Liverpool, Liverpool, UK

2. Faculty of Health and Life Sciences, University of Liverpool, Liverpool, UK

3. Department of Neurosurgery, The Walton Centre NHS Foundation Trust, Liverpool, UK

4. Department of Clinical Oncology, The Clatterbridge Cancer Centre NHS Foundation Trust, Wirral, UK

5. Department of Neuropathology, The Walton Centre NHS Foundation Trust, Liverpool, UK

6. Department of Neuroradiology, The Walton Centre NHS Foundation Trust, Liverpool, UK

Contact Information

Corresponding authors’ details

Abdurrahman Islim: [a.islim@liv.ac.uk](mailto:a.islim@liv.ac.uk); personal email: [aislim9@gmail.com](mailto:aislim9@gmail.com)

Michael Jenkinson: [Michael.Jenkinson@liverpool.ac.uk](mailto:Michael.Jenkinson@liverpool.ac.uk)

**3. Dates of data collection**

01/01/2007 to 31/12/2015 with follow-up through 31/03/2018

**4.** **Geographic location of data collection**

Data from electronic and paper patient medical records, The Walton Centre NHS Foundation Trust, Liverpool, Merseyside and The Clatterbridge Cancer Centre NHS Foundation Trust, Bebington, Wirral, United Kingdom.

**5.** **Information about funding sources that supported the collection of the data**

No external funding received

SHARING/ACCESS INFORMATION

**1.** **Licenses/restrictions placed on the data:**

The dataset has been fully anonymised by removing any patient details that might enable their identification. The data is available under a Creative Commons Attribution-NonCommercial 4.0 license (CC BY-NC 4.0) (http://creativecommons.org/licenses/by-nc/4.0/), which permits the user to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

**2.** **Links to publications that cite or use the data**

To be added when available

**3.** **Links to other publicly accessible locations of the data**

N/A

**4. Was data derived from another source?**

No

DATA & FILE OVERVIEW

**1. File List**

A. Filename: Incidental meningioma database\_ Final. File type: Microsoft Access Database (.accdb)

**2. Additional related data collected that was not included in the current data package**

No

**3. Are there multiple versions of the dataset**

A non-anonymised data set is stored on the corresponding authors’ Walton Centre IT accounts.

METHODOLOGICAL INFORMATION

**1. Description of methods used for generation of patient list**

Patients 16 years of age or older with a newly identified incidental meningioma were included. Radiation-induced and Neurofibromatosis type 2 associated meningioma patients were excluded. Eligible patients were identified using the Computerised Radiological Information System (CRIS) search tool. The search terms utilised were “meningioma”, “incidental” and “incidental meningioma”. The two lists of patients obtained from searching "incidental" and "meningioma" were combined and only duplicates (patients that appeared on both lists) were maintained whereas unique records were discarded. One unique record for each patient was subsequently kept. The list acquired from the search using “incidental meningioma” was cross-checked against patients obtained from the first search strategy to ensure they all featured. These steps were performed in Microsoft Excel for Windows version 16.0.

**2. Data-specific information for: Incidental meningioma database\_Final**

A. Number of cases

441

B. Variables

* Patients’ demographics. Data source: medical records. Factors recorded included age, sex, the World Health Organisation Performance Status (WHO PS) and the age-adjusted Charlson comorbidity index. History of malignancy, type and status (in-remission /active) were also recorded. Active malignancies included those undergoing treatment, those identified and awaiting treatment, and patients with evidence of clinical or radiological disease progression. In-remission status was assigned to those who had finished their scheduled treatment with no succeeding clinical or radiological evidence of progression, regardless of time.
* Indication for carrying out brain imaging which led to the identification of a meningioma, these reasons had to be unrelated to the tumour itself.
* Radiological data. Data source: Carestream Vue picture archiving and communication system (PACS), version 11. Factors recorded included number of meningiomas, calcification status on non-contrast CT (diffuse/partial/absent), MRI field strength, tumour signal intensity compared to the contralateral grey matter on MRI T2/FLAIR (hypo/iso/hyper), peritumoural oedema in relation to tumour volume using the signal change present on MRI T2/FLAIR (0-5%/6-33%/34-66%/67-100%; based on the Visually AcceSAble Rembrandt Images [VASARI] MR features for gliomas), maximum meningioma diameter on gadolinium-enhanced axial MRI T1 (A), diameter perpendicular to A (B), maximum height on coronal/sagittal gadolinium-enhanced MRI T1 (C). Meningioma volume was calculated using the ABC/2 formula. Meningioma location was classed into non-skull base and skull base and further subcategorised according to the Society for Neuro-oncology International Consortium on Meningioma (ICOM) classification system (supplementary material). Meningiomas in proximity of the major dural venous sinuses (superior sagittal sinus [SSS]/transverse sinus [TS]/sigmoid sinus [SS]/cavernous sinus [CS]/the confluence of sinuses) were categorised as separate, in direct contact or invading. Contact with critical neuro-vascular structures (i.e. ICA, optic apparatus [OA]) was noted. Meningiomas that fulfilled one of the two previous categories were said to be in proximity of critical neurovascular structures. Any other intracranial pathologies were also noted.
* Management plan agreed upon following identification of an incidental meningioma (active monitoring/surgery/SRS/FSRT/hospital discharge) and the responsible physician (neurosurgeon/neurologist/clinical oncologist). Data source: medical records.
* Active monitoring defined as regular surveillance imaging and outpatient clinical observation. Data source: medical records and PACS. Recorded factors included: number of scans, and interval between them (months). For each scan the following was noted: imaging modality (CT/MRI and field strength), peritumoural signal intensity, venous sinus involvement, meningioma volume and any new intracranial pathologies. Each scan was examined alongside its corresponding outpatient clinic appointment for any evidence of meningioma-related neurological symptoms (motor/sensory/language/cognitive/seizure/headache/other). Each appointment’s outcome was recorded (resume follow-up/surgery/Stereotactic radiosurgery/fractionated radiotherapy/hospital discharge).
* Intervention details if performed, indication for intervention (radiological/clinical/patient preference) and time-to-intervention. Data source: medical records.
* Surgery: Simpson score (as recorded by the surgeon in the operative notes), WHO grade (reclassified according to the WHO 2016 system), histological subtype, postoperative medical and surgical complications (Landriel-Ibañez Classification), postoperative WHO PS, postoperative follow-up duration, recurrence during that time (yes/no) and if recurred time-to-recurrence.
* Stereotactic radiosurgery: dose, early and late (≥3 months) toxicity (assessed by CTCAE [Common Terminology Criteria for Adverse Events] v5.0), duration of follow-up post-radiation and tumour response during that time (progression, regression or stable disease).
* Fractionated radiotherapy: number of fractions, fractionated dose, total dose, early and late toxicity, duration of follow-up post-radiation and tumour response during that time (progression, regression or stable disease).
* Hospital discharge. Data source: medical records. Time-to-discharge was recorded. Data sources were also checked for any readmissions/rescans thought to be attributed to the incidental meningioma within the study time-frame. Outcome following readmissions/rescans was noted.
* Overall outcomes by the end of the study period (hospital discharge/lost to follow-up/dead/under follow-up) and follow-up durations. Data source: medical records.
* Mortality. Any deaths encountered during follow-up were noted. The medical records for patients discharged were also examined for mortality data. Duration between diagnosis and death were noted for deceased patients. Data source: medical records, NHS Spine and CRIS.

**3. Data analysis**

Analysis methods are provided in the papers submitted in relation to the data sets. Links will be made available once published