Alien Hand Syndrome: A Case Report and Approach to Rehabilitation

David Mackarel, Sowmy Murickal, Farah Kassim, Helen Banks, Shagufay Mahendran, Ganesh Bavikatte

Dr David Mackarel MBChB, MRCP (UK), MRCPE is SpR in Rehabilitation Medicine, The Walton Centre NHS Foundation Trust, Liverpool, L9 7LJ, UK.

Dr Sowmy Murickal MBBS is FY2 Doctor, The Walton Centre NHS Foundation Trust, Liverpool, L9 7LJ, UK.

Dr Farah Kassim MD, MSc (Hons), DFSRH, MRCGP is Trust grade Doctor, The Walton Centre NHS Foundation Trust, Liverpool, L9 7LJ, UK.

Dr Helen Banks MBBS, MRCP (UK) & **Dr Shagufay Mahendran** MBBS, MRCP (UK) are Consultants in Rehabilitation Medicine, The Walton Centre NHS Foundation Trust, Liverpool, L9 7LJ, UK.

Dr. Ganesh Bavikatte MBBS, MD (Medicine), MRCP (UK), MRCP (London), FEBPRM (Europe) is Consultant and Clinical Lead in Rehabilitation Medicine, Honorary Clinical Lecturer Liverpool University, Clinical lead for North West Assistive Technology, The Walton Centre NHS Foundation Trust, Liverpool, L9 7LJ, UK.

Corresponding Author:
David Mackarel
E-mail:
dmackarel@doctors.org.uk

The Alien Hand Syndrome (AHS) is a phenomenon characterized by involuntary autonomous activity of the affected extremity, perceived by the patient as controlled by an external force. It may result from a number of conditions including brain injury, stroke, tumors and progressive neurological disorders. We report a case of AHS in a 60 year old right handed gentleman admitted with a subarachnoid haemorrhage secondary to a pericallosal aneurysm. He developed involuntary movement of his right hand including excessive grasp reflex and intermanual conflict. The current literature is scarce on specific rehabilitative strategies and therefore a number of approaches were used at different stages. He was noted to make good progress throughout his rehabilitation and by time of discharge his Alien Hand movements were diminished and interfering less in activity performance. The AHS may be under recognized and can hinder rehabilitation if not diagnosed. A number of rehabilitation approaches can be used and significant improvement can be expected.

Keywords: Alien Hand Syndrome, Subarachnoid Haemorrhage, Corpus Callosum, Rehabilitation

INTRODUCTION

The Alien Hand Syndrome (AHS) is a striking phenomenon characterized by involuntary autonomous activity of the affected extremity, perceived by the patient as controlled by an external force. The patient is unable to explain the source of such movement and considers the limb as foreign and to move as if having a mind of its own. The syndrome was first described in 1908 by Kurt Goldstein[1].

AHS may result from a number of conditions including brain injury, stroke, midline tumours and progressive neurological disorders. AHS has been reported as the sole presenting complaint of Creutzfeldt-Jakob disease (CJD)[2]. AHS generally arises secondary to lesions affecting the corpus callosum and motor cortex. However, there are some case reports[3,4,5] of a rarer sensory/posterior form resulting from lesions in the parieto-occipital areas. In the commoner motor form of AHS, patients show grasping movements and intermanual conflict (the affected hand attempts to interfere with, or perform movements contrary to, the unaffected hand). In the rarer sensory form the patient shows withdrawal or levitation movements.

CASE REPORT

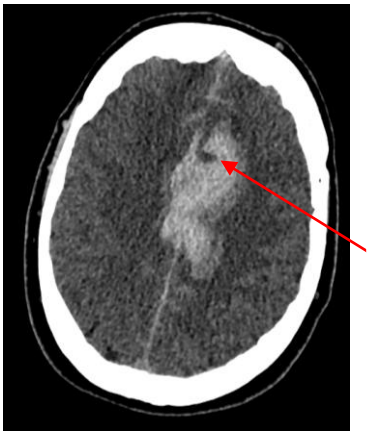
We report the case of a 60 year old right handed gentleman, admitted following a collapse. Informed consent was obtained from patient and family. He had a history of hypertension. On arrival Glasgow Coma Score (GCS) was 7/15. Computed Tomography (CT) scan of his head showed diffuse subarachnoid haemorrhage and a large bilateral parasaggital intraparenchymal haematoma with mass effect (**Figure 1**).

An angiogram revealed a pericallosal aneurysm for which he underwent coiling. He was admitted to the Intensive Care Unit post-procedure. On transfer to the hyperacute rehabilitation unit, impairments included; right hemiparesis, right facial weakness, expressive and receptive dysphasia and right upper limb tremor. He developed abnormal movements of his right hand. These did not appear to be voluntarily initiated. Exploration of this was challenging due to marked expressive and receptive dysphasia. He appeared to involuntarily grasp objects with his right hand and was unable to release them. His right hand would interfere with the left when it was attempting to perform a task (intermanual conflict). His left hand would attempt to control the movements of his right suggesting that these right hand movements were not under his voluntary control. This is consistent with a diagnosis of AHS.

Different rehabilitation strategies were employed. The available literature was scarce on specific rehabilitation techniques to use and so various approaches were attempted. During the first 2 months he demonstrated excessive grasp reflex. During this stage remedial and neurodevelopmental approaches were employed. Remedial approaches included strengthening the extensor musculature, increasing range of movement, perceptual retraining and desensitisation of the right hand. Neurodevelopmental approaches included weight bearing activities, trunk rotation activities, facilitation of slow and controlled movements and guided movements facilitated by the therapist when completing tasks. Problems noted during this stage were co-contractions of muscles resulting in reduced passive range of movement and underlying cognitive impairment hindered the completion of biofeedback and relaxation techniques. He was unable to complete guided movements consistently due to the strength of the grasp reflex.

During the second 2 months, task specific training was undertaken. For example, feeding, grooming, dressing and wheelchair skills. Difficulties with this approach included perseveration in motor tasks, intermanual conflict and difficulties with executive functioning and initiation and sequencing of tasks. During the final 2 months the focus shifted to a compensatory strategy. For example, using the unaffected hand in unilateral tasks, wearing a neoprene splint on the affected hand to provide proprioceptive feedback and adapting the environment to reduce visual distractions. There were concerns with this approach as he had less natural skill in his non-dominant hand and it required restriction of a limb with appropriate strength and movement.

During his treatment, realistic and functionally orientated goals were set and over time he made good progress with rehabilitation.



Large Bilateral Parasagittal Haematoma with Mass Effect

Figure 1 Admission CT Head

On discharge he was using a powered wheelchair independently with his left hand and AHS symptoms were much improved. He still had evidence of AHS on the right but movements were diminished with less interference in activity performance.

DISCUSSION

The literature on the specific treatment and the rehabilitative approach to AHS is scarce. In our case, co-existing dysphasia and cognitive impairment made the diagnosis more challenging. It may be that AHS is under recognized in clinical practice for this reason in addition to a lack of awareness of the condition.

AHS hinders rehabilitation and can impact functional recovery if not recognized. Different rehabilitation approaches can be employed and significant improvement can be expected in terms of functional outcome and reduction in the impact of the Alien Hand movements. Close interdisciplinary working is essential to ensure outcomes are maximized.

The possibility of AHS should be considered for patients with corpus callosum and motor cortex lesions. Developing strategies to overcome the condition was challenging as no guidelines exist and there is limited evidence base. The earlier the diagnosis is established the sooner the appropriate rehabilitation process can be initiated, contributing to good improvement in function and recovery.

We hope this article will not only increase awareness of the AHS and its impact, but raise interest to study rehabilitation strategies for the condition.

CONCLUSION

Early recognition of patients who present with AHS will allow the multi-disciplinary rehabilitation team to set goals and tailor the rehabilitation approach to target the functional limitations caused by this condition. With appropriate rehabilitation input, significant improvement can be expected in patients with AHS.

CONFLICTS OF INTEREST

None declared

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