

## Case Study: Traumatic Brain Injury (TBI)

### Part 1: Getting to Know Mateo

#### Mateo and his Family

Mateo is a 3-year-old boy who lives in a suburban neighborhood in Maryland with his mother, Carla (29), and father, Luis (31). The family identifies as Hispanic and speaks Spanish at home. Luis works in landscaping, and Carla recently returned to work part-time as a home health aide. Mateo is the only child, and his grandparents, who live nearby, provide regular support with childcare and transportation to medical appointments.

A few months ago, Mateo sustained a moderate traumatic brain injury (TBI) in a motor vehicle accident. Although he was properly restrained in a car seat, his head struck the window during the collision. He lost consciousness for several minutes and was hospitalized for ten days, including three days in the Pediatric Intensive Care Unit (PICU). Neuroimaging revealed a contusion in the left frontal lobe and diffuse axonal injury.

Before the accident, Mateo was a curious and active child who enjoyed stacking blocks, singing songs, and helping his mother in the kitchen. He spoke in short sentences and actively explored his surroundings. Since the injury, his parents have noticed significant changes in his behavior, communication, and motor skills.

#### Medical and Developmental History

Mateo's TBI affected critical areas of the frontal lobe, which are responsible for regulating attention, memory, emotional control, and expressive language.

Post-injury, he has demonstrated impairments in multiple domains:

- **Attention and Memory:** Mateo now struggles to maintain focus during play and structured activities. He is easily distracted and often forgets instructions or routines, which affects his ability to participate in learning and daily tasks.
- **Emotional Regulation:** Increased irritability and emotional outbursts have become common. Mateo may cry suddenly, resist transitions, or become overwhelmed in noisy or unpredictable environments. These behaviors are consistent with frontal lobe injury and reflect challenges in self-regulation and impulse control.
- **Motor Coordination:** Mateo's balance and coordination have declined. He stumbles frequently and avoids climbing or running, activities he previously enjoyed. His physical therapist noted reduced postural stability and slower reaction times, which are typical motor impairments following TBI.
- **Expressive Language:** Before the accident, Mateo used short sentences to express his thoughts. Now, his speech is limited to single words or gestures. His speech-language pathologist identified signs of expressive language delay and mild dysarthria, which is the difficulty controlling the muscles used for speech, likely resulting from disrupted motor planning and frontal lobe involvement.
- **Feeding Difficulties:** Mateo has an aversion to certain textures and occasionally chokes during meals. His occupational therapist observed reduced jaw stability and lip closure, as well as impulsive feeding.

behaviors, which increased the risk of aspiration. These findings are consistent with post-traumatic brain injury (TBI) feeding disorders and require ongoing monitoring for nutrition and safety.

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#### **Discussion Prompts:**

- What additional questions would help you understand Mateo's family routines and caregiving responsibilities?
- How might cultural and linguistic factors influence the family's experience navigating medical and educational systems?
- What supports might be needed to help Mateo transition from home-based care to a preschool setting?

## **Part 2: Screening and Assessment**

### **Therapeutic Services and Recovery Pathway**

During his hospital stay, Mateo received inpatient physical, occupational, and speech therapy, which focused on stabilizing his motor function, supporting safe feeding, and initiating communication recovery. Early intervention leveraged neuroplasticity, encouraging the brain to reorganize neurons and form new neural connections.

Now, Mateo continues with outpatient therapy four times a week, where his team works on:

- Improving gross and fine motor coordination
- Supporting expressive and receptive language development
- Enhancing feeding safety and sensory tolerance
- Building attention and emotional regulation through structured play and routines

His therapists use a combination of play-based interventions, visual supports, and caregiver coaching to embed therapeutic strategies into everyday routines. While progress is gradual, Mateo has begun to show signs of improvement, and his family remains hopeful. Carla and Luis are learning to navigate the complexities of supporting a child with TBI, balancing medical appointments, therapy sessions, and the emotional demands of caring for a child with TBI.

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#### **Discussion Prompts:**

- What questions would you have for his medical team as part of his intervention team?
- How can interdisciplinary teams collaborate to create meaningful and functional goals for children with TBI?
- What considerations should be made when selecting and implementing behavioral supports for children with cognitive and emotional regulation challenges?

### Part 3: Peer Relationships in an Inclusive Preschool Setting

After being discharged from the hospital, Mateo returned to his inclusive preschool classroom with bilingual support. Prior to his return, the classroom team received training in trauma-informed practices and worked closely with the rehabilitation team to support Mateo's motor, cognitive, communication, and emotional needs and development.

Initially, Mateo struggled with peer interactions. He often played alone and became overwhelmed during group activities. His limited expressive language and difficulty with self-regulation made it hard for him to initiate or maintain play with peers.

To support Mateo's peer relationships, the team implemented several strategies:

- **Peer Modeling:** Mateo was paired with a peer buddy during play and transitions to help model appropriate social behaviors and support Mateo's engagement.
- **Visual Supports:** Teachers used picture schedules, emotion cards, and social stories to help Mateo understand routines and expectations.
- **Small Group Activities:** Mateo participated in structured small group play to reduce sensory overload and increase opportunities for positive peer interactions.
- **Teacher Facilitation:** Educators used gentle prompts and proximity to support Mateo's engagement and help him navigate social situations.

Over time, Mateo began to initiate interactions, respond to peers' invitations, and participate in cooperative play. His teachers noted an increase in confidence and a reduction in frustration. Carla and Luis reported that Mateo talked about his classmates at home and looked forward to going to school.

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#### Discussion Prompts:

- What strategies can educators use to promote peer relationships with children with TBI in inclusive settings?
- How can classroom routines and environments be adapted to support learning for children with emotional and behavioral regulation challenges?
- What role do peers play in shaping inclusive classroom culture, and how can educators foster empathy and collaboration?