



## **Multidisciplinary Management of Complex Neonatal Conditions: Baby Boy RAJ's Experience**

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### **Introduction:**

The care of infants born prematurely or with complex medical conditions requires a multidisciplinary approach to address their unique needs and challenges. This comprehensive case study focuses on the neonatal and developmental care journey of Baby Boy RAJ, born at 37 2/7 weeks' gestation, who faced numerous medical complications from birth. Baby RAJ's case presents a compelling narrative of resilience, medical management, and developmental intervention within the context of a supportive family environment.

Upon birth, Baby RAJ initially appeared healthy with reassuring Apgar scores but quickly developed respiratory distress and abdominal complications, necessitating prompt medical attention and surgical intervention. His journey through neonatal intensive care and subsequent rehabilitation involved a collaborative effort among healthcare professionals, including physicians, surgeons, physical therapists, and occupational therapists.

Physical therapy played a crucial role in Baby RAJ's care trajectory, starting from the early weeks of life when he was referred for assessment and intervention. Despite his medical complexities, including abdominal surgery, ileostomy, and gastrointestinal complications, physical therapists worked closely with Baby RAJ and his family to address his developmental needs and optimize his functional outcomes.

Throughout his hospitalization, Baby RAJ's parents played an active role in his care, decorating his bedside with familial mementos and engaging in therapeutic activities recommended by the healthcare team. Despite setbacks such as surgical complications and episodes of sepsis, Baby RAJ demonstrated progress in his physical and developmental milestones with the support of his dedicated caregivers.

The interdisciplinary approach to Baby RAJ's care extended beyond physical therapy, with occupational therapists also becoming involved to address his sensory and developmental needs. The integration of various therapeutic modalities underscored the comprehensive nature of his care plan, tailored to his evolving medical and developmental status.

As Baby RAJ progressed through his hospitalization, his caregivers collaborated on setting short-term and long-term goals, adjusting interventions based on his response to treatment and surgical outcomes. The involvement of his family in decision-making and therapy sessions fostered a supportive environment conducive to Baby RAJ's growth and development.

Ultimately, Baby RAJ's resilience and the collaborative efforts of his healthcare team and family culminated in his successful transition from the neonatal intensive care unit to home care. The continuity of care ensured ongoing monitoring of his developmental progress and medical needs, with his parents equipped with the necessary skills and resources to support his ongoing development.

In the subsequent sections of this case study, we will delve into the detailed physical therapy examination, course of treatment, and developmental outcomes achieved by Baby RAJ, highlighting the integral role of family-centered care and interdisciplinary collaboration in optimizing outcomes for infants with complex medical conditions.

Baby boy RAJ was born at 37 2/7 weeks' gestation via spontaneous vaginal delivery to a 24-year-old G4P3A1, a mother with normal labs. He weighed 3.375 kg, had Apgar scores of 81-85, and was taken to the well-baby nursery at the local hospital, where he developed respiratory distress without O<sub>2</sub> requirement on day of life 1. Chest radiography was negative. After being fed for 12 hours, he developed abdominal distention and was ill appearing. Abdominal radiography showed pneumatosis, and baby RARAJ was transferred to his local children's hospital for surgical evaluation. On day of life 3, he underwent laparoscopic surgery and had ileal cecectomy, with ileostomy and mucous fistula placement. Eleven centimeters of bowel was resected. Feeds were initiated on day of life 17, and baby RAJ developed abdominal distention and emesis. On day of life 23, the upper gastrointestinal series showed possible stoma stenosis. He had a history of fungal line sepsis, treated with amphotericin. Baby RAJ's parents were married and had two preschool-aged siblings; the eldest sibling received speech therapy through early intervention.

Physical Therapy Examination Baby RAJ was referred for physical therapy at 3.5 weeks of age. At that time his nutrition consisted of 5 mL of Pregestimil by mouth every 3 hours as well as hyperalimentation. His physical therapy examination was limited to the right side-lying position, in an effort to keep

the stool from his stoma from draining into his abdominal wound, which had dehisced. He presented in a sleep state throughout the session with mildly distended abdomen, gauze pad over abdomen, colostomy with a small amount of yellow seedy stool, and a peripherally inserted central catheter (PICC) line in the left anterior calf. The CRIES pain score was 0 to 1 throughout examination. Baby RAJ did not habituate to light over 10 trials and habituated to rattle on sixth stimulus in sleep state. Muscle tone was mildly decreased in sleep state. Initial examination was limited on account of positioning precautions and sleep state. Baby RAJ's physical therapy diagnosis was increased risk for developmental delays due to medical status and potential for prolonged hospitalization. He was to be followed by physical therapy two times per week for ongoing assessment, parent education, and developmental stimulation. Initial short-term goals (4 weeks) included alerting for 8 to 10 minutes per session, visually attending to face for 8 to 10 seconds, intact anterior and posterior head righting reactions in upright with support at upper chest, and parents to be independent with positioning baby for comfort. The long-term goal was age-appropriate developmental skills at 15 months. At baby RAJ's second physical therapy session, he demonstrated slow state transitions with defined drowsy state and bright-eyed alert periods with visual regard for the therapist, cleared his airway in prone, and demonstrated intact anterior-posterior head righting reactions and symmetric flexor tone of his limbs. His active range of motion (AROM) was jittery with the presence of forearm rotation right to left. He did not demonstrate automatic walking. Physical Therapy Course Baby RAJ's parents were frequently at his bedside with his older siblings. His family decorated his bed space with poems, photographs, and pictures from his siblings and extended family. His parents were receptive to suggested play ideas for baby RAJ, which were explained, demonstrated, and posted at his bedside by his physical therapist. At next re-examination at 1.5 months of age, baby RAJ had missed one session due to fever. He had developed a left head preference and was an animated baby who used yawning or sneezing to regulate intensity of social interactions. He had met all of his short-term goals, and new short-term goals (4 weeks) included the following: AROM of head/neck to right 45 to 60 degrees to follow visual cue two times per session, neutral head extension sustained in prone for 8 to 10 seconds, bat at toy in supine once per session, and sustain neutral head extension in upright for 10 to 18 seconds with support at upper trunk. Baby RAJ continued to be seen twice weekly; however, on day of life 56 he underwent laparoscopic surgery for closure of his enterostomy and lysis of adhesions. Postoperatively, baby RAJ developed a fever and was taken back to the operating room for exploratory laparoscopy on day of life 61, where an abscess was discovered; the surgeons drained this abscess and reinforced his reanastomosis. After this latter surgery, physical therapy goals changed as baby RAJ was intubated, irritable, stiff, and colonized with MRSA. The physical therapist provided baby RAJ's parents with suggestions for comforting, handling, and positioning baby RAJ as well as placement of visual stimulation in order to encourage neutral head alignment. New short-term goals (4 weeks) when baby RAJ was 2.5 months old included tolerating prone placement without fussing for 90 to 180 seconds, extending head in prone for 3 to 5 seconds, approximating hands in midline in supine twice per session, and sustaining neutral head in upright for 8 to 10 seconds with support at axilla, and baby RAJ's parents describing two developmentally appropriate activities for baby RAJ. Baby RAJ missed several physical therapy sessions after this latter surgery due to sleep state and critical medical status due to sepsis. At the next re-examination at 3.5 months, baby RAJ had transferred out of the NICU to an integrated care service to address his ongoing feeding issues. He demonstrated social smiles and could extend his head to 90 degrees in prone with elbows behind shoulders; he demonstrated head righting reaction in prone when the therapist imposed lateral weight shifts; he was able to sustain head in neutral in upright with bobbing. Occupational therapy became involved with him at this time and followed him twice weekly as well. New 4-week short-term goals included taking weight through lower extremities for 8 to 10 seconds in supported standing, sustaining lateral head RR in prone with imposed weight shift for 25 to 40 seconds bilaterally, maintaining 90-degree head extension in prone prop for 40 to 60 seconds with elbows in line with shoulders, and grasping rattle in hand with eye-hand regard two times per session. Baby RAJ was seen twice a week for sensory and developmental stimulation. At 4.5 months of age, baby RAJ completed the Test of Infant Motor Performance (TIMP) and performed within the normal limits for his age. Baby RAJ was discharged home shortly after that on oral feeds. His parents were trained in nasogastric tube placement and use in case baby RAJ was unable to maintain oral feeds. He was to follow up with his pediatrician for developmental and medical monitoring. His parents were given suggestions for developmental activities for the present and upcoming 3 months.

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