



Three mythic giants for common fetal malformation called “cyclopia”: Polyphemus, Tepegöz, and Grendel

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“Cyclopia” as a manifestation of holoprosencephaly

Cyclopia, derived from the term cyclops, is a rare and serious fetal anomaly in which the eyes are fused together, as a result of failure of splitting of the eye field and overgrowth of the first visceral arch (Fig. 1 and Cover) [1, 2]. Embryologically, the two orbits are fused into a single cavity containing a single or two eyeball(s) and there is a small anterior fossa of the skull cavity associated with a single optic nerve and cerebral mass [1]. Cyclopia associated with hydrocephaly, holoprosencephaly, or anencephaly is a severe malformation of the brain incompatible with survival [1, 2]. This anomaly is a rich source of mythology because of its dramatic impact on societies for centuries, as revealed in the following legends [2].

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Cyclopic mythic giants: Homeric Polyphemus, Turkish Tepegöz, and Anglo-Saxon Grendel

Cyclopic giants that are one-eyed, man-eating animal-like supernatural devils such as Polyphemus, Tepegöz, and Grendel are well-known mythic legends of the Western and Eastern cultures in the world literature from past history (Fig. 1 and Cover) [3]. Depending on the culture, Western or Eastern, they are killed by good and powerful heroes such as Odysseus, Beowulf, and Basat in the narratives as a result of conflicts between the hero and evil [3, 4]. Today, it is not clear which of them is the primary source of the tales as there are many similarities and differences among the texts of epic poems and stories (Table 1) [3–5].

In the book of *Dede Korkut Stories*, the hero Basat who saves Oghuz Turks from the one-eyed, located at the top of its head, man-eating giant Tepegöz, the illegitimate son of the Shepherd of the Oghuz and the Sea Fairy, the baby of Uruz Koja, falling from the horse during the attack of the enemy, is then found by the father being nursed by a lioness, and Dede Korkut gives him the name Basat [3, 5]. In the book of *The Odyssey or The Iliad* by Homer, the hero Odysseus fights with the semi-human giant Polyphemus, the son of the God Poseidon and Thoosa in ancient Greek mythology, with a single eye at the center of his forehead [3, 4]. In the book of *Beowulf*, the hero *Beowulf* fights with the giant dragon Grendel [3]. Polyphemus and Tepegöz live in the caves, while Grendel lives in the moors and the marshes [3]. According to these stories, the heroes Basat and Beowulf fight with the man-eating monsters, which threaten their societies, and the cyclopic giants Tepegöz and Grendel are killed by the heroes, suggesting the presence of patriotism rather than that of individualism [3]. On the other hand, the hero

Fig. 1 and Cover The giants: Turkish Tepegöz (left), Homeric Polyphemus (center), and Anglo-Saxon Grendel (right) with a newborn baby with cyclopia (bottom), demonstrating a good example of how a single congenital facial defect associated with neurological anomalies serves as a source for the education of children in the cultures of different societies around the world (a drawing of cyclopic mythic giants and a baby with cyclopia was produced by Ahmet Kuzu and Sercan Çelebi for cover picture)



Table 1 A comparison of three mythic giants and legendary heroes in the world literature

Literature	Mythic giants	Mythic heroes	Book of
Ancient Greek	Polyphemus	Odysseus	The Odyssey or The Iliad
Oghuz Turkish	Tepegöz	Basat	Dede Korkut Stories
Anglo-Saxon	Grendel	Beowulf	Beowulf

Odysseus alone blinds the eye of the giant Polyphemus on a personal mission, whereas the eyes of the cyclopic giants Tepegöz and Polyphemus's are blinded and then they are killed by the heroes Basat and Beowulf [3, 4]. Finally, the heroes Basat and Beowulf thank God for helping them, while the hero Odysseus gives no thanks to God at the end of the story [4, 5].

Compliance with ethical standards

Conflict of interest The authors have no conflicts of interest.

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